A Naval Safety Center Publication

New 374-A

approach

JANUARY 1973 THE NAVAL AVIATION SAFETY REVIEW

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Night Engine Failure At

LOW ALTITUDE

THE F-4J approached the break for night FCLP. Visually acquiring his interval, the pilot broke left, slowed to gear speed, dropped gear and flaps, and proceeded downwind.

Approaching "on speed," the *Phantom* was stabilized at 150 knots and 600 feet AGL. *Completing* the landing checklist, the pilot reported his fuel state to be 5900 lbs on the tape and 6500 lbs on the totalizer. Abeam, the RIO reported "wheels down" and state, then proceeded to time off the 180 degree position.

Turning off an extended 180, both crewmembers heard a "pop" and felt immediate engine/airframe vibration. The RIO questioned the pilot on the sound and the pilot, quickly glancing at his engine instruments, mistakenly reported that they had lost the port engine (it was, in fact, the starboard engine unwinding).

He quickly jammed both throttles to max afterburner and selected one-half flaps. The RIO immediately began monitoring the airspeed and altimeter. Seeing the airspeed decreasing through 110-120 knots and the altimeter unwinding through 400 feet, the RIO initiated command ejection. Ejection was normal, and both crewmen landed unhurt in an intracoastal waterway. They were picked up by a passing boat.

The aircraft continued for about ½-mile, striking the ground wings-level in a slightly nose-high attitude. It travelled an additional 100 yards and came to rest relatively intact in swampy terrain. There was no post-impact fire.

Post-accident investigation determined the cause of the starboard engine failure to be FOD caused by an NAS type ¼-28 hex head bolt. The only bolt of this type used in the F-4 is in the ramp center hinge. Investigation of the wreckage revealed that all bolts of this type were in place. Therefore, the extra bolt had probably been lodged somewhere in the area behind the ramp and worked its way out to be ingested by the engine.

Investigation of maintenance records revealed two occasions – both during depot level work – when maintenance was performed in the ramp area. A review of the F-4 MIM revealed that procedures concerning work on the ramp are complete and, if properly executed, will not allow extra bolts to be left in this area. A proper inspection of the area would have uncovered such FOD potential. As a result of this accident, the type commander has directed that the calendar inspection MRC deck be revised to include inspection of the variable inlet ramp area for foreign objects. In addition, an X-ray inspection of the F-4 vari-ramp area is now required to be accomplished during each calendar check.

According to the mishap board, the pilot's initial action in response to the engine failure was correct. It was dark, in the area of relatively few surface lights, with the visibility reduced by haze, and the pattern altitude was only 600 feet. Although the board was unable to determine the exact duration of the time from the first indication of trouble to the pilot's recognition of engine failure, the time is believed to have been minimal. The pilot stated he had lost the port engine when, in fact, it was determined to be the starboard engine. Investigation showed the engine instruments to be connected to the proper engines. The board felt that misreading the instruments was not a factor, at least initially, since the pilot stated positively that he instantly moved both throttles to full afterburner and moved his flap switch from full down to the one-half position. 1

Investigation of the wreckage showed the throttle positions to be different from those stated by the pilot. The starboard throttle was at maximum afterburner, but the port throttle was in the idle position. While the pilot did not specifically recall moving either throttle out of afterburner, he did remember thinking of attempting a relight. In this light, the board believes that after placing both throttles in afterburner, and feeling no afterburner lightoff and seeing no nozzle movement, he consciously (or unconsciously) moved the port throttle out of burner in an attempt to initiate a relight.

While a relight attempt is not specifically prohibited in this environment, it was concluded that the pilot would have been better off not moving either throttle,

The crash site showing impact area, paths of travel and wreckage distribution.

since a relight can be accomplished from any throttle position above idle.

Because the pilot reported no indications of afterburner ignition, the board made a concerted effort to determine the cause of afterburner failure. Three possible causes were analyzed. The first was that the port engine was never advanced to the afterburner position. This possibility was dismissed as unlikely, since it is unnatural for a pilot to jam accelerate only one engine to afterburner, when the pilot's hand normally moves both simultaneously. The second possibility was that both throttles were moved into the afterburner detent, the port engine afterburner then deselected before allowing sufficient time for afterburner ignition. This was considered a possibility, since there is a 2-4 second delay built into the afterburner ignition system. The third and most likely was that the port afterburner never achieved ignition due to material failure/malfunction. Initial investigation of the wreckage revealed only three circuit breakers (out of more than

250) popped in the rear cockpit. Two of them concerned missile firing, and the third was the port engine afterburner ignition circuit breaker.

Investigation of the afterburner sections of the port engine revealed no apparent discrepancies, and the circuit breaker panel was in workable condition following the crash. Since the impact was relatively mild, it is unlikely that the afterburner circuit breaker popped on ground impact. Although investigation did not reveal any apparent mechanical reason for the failed circuit breaker, the combination of the pilot and RIO not feeling the afterburner light, noting no nozzle movement, no observation of burner by credible witnesses, and the popped afterburner ignition circuit breaker made the third possibility seem most plausible.

Subsequent to this accident, COMNAVAIRLANT addressed a message to NAVAIRSYSCOM which stated in part:

"... the F-4 NATOPS does not describe nor contain specific emergency procedures for engine failure/power loss in the landing pattern/configuration. Establishment of such procedures is considered essential to safety of flight to preclude needless loss of aircraft or loss of aircrews attempting to regain flight control when recovery is not possible.

"Informal liaison with NAVAIRTESTCEN indicates that more specific flight test data are necessary to properly formulate subject procedures in landing configuration/pattern. Based on known flight characteristics and possible failures, procedures for the following conditions are necessary:

"(a) Double-engine failure: Ejection appears to be the only feasible solution.

"(b) Single-engine failure/partial power loss: Immediate selection of maximum afterburner on both engines, selection of one-half flaps, jettisoning of all stores, possibly gear retraction and actuation of ignitor buttons appear as best course of action. Also, establishment of some combination of power available, minimum altitude/airspeed/AOA, and rate of descent at which recovery is no longer possible is necessary."

The message concluded with the request that NAVAIRTESTCEN be tasked with a test project to determine required flight characteristics and formulate recommended F-4B/J and RF-4B NATOPS discussion and emergency recovery procedures for power loss (any type) in landing pattern/configuration.

NAVSAFECEN has concurred in these comments/recommendations and has further recommended that power/drag configuration requirements to simulate *in extremis* single-engine conditions be investigated for possible development of a realistic/safe training procedure.

A Gear Blackout

AFTER a night instrument flight, an F-4J pilot entered downwind for a final MOREST landing. He gave the tower his weight and speed for arrestment (37,000 lbs, 120 KCAS), and the tower advised that the indicating lights for the E-28 gear (2800 feet beyond the point of touchdown) were out. The tower further advised that they would call for the hook prior to the M-21 morest midfield.

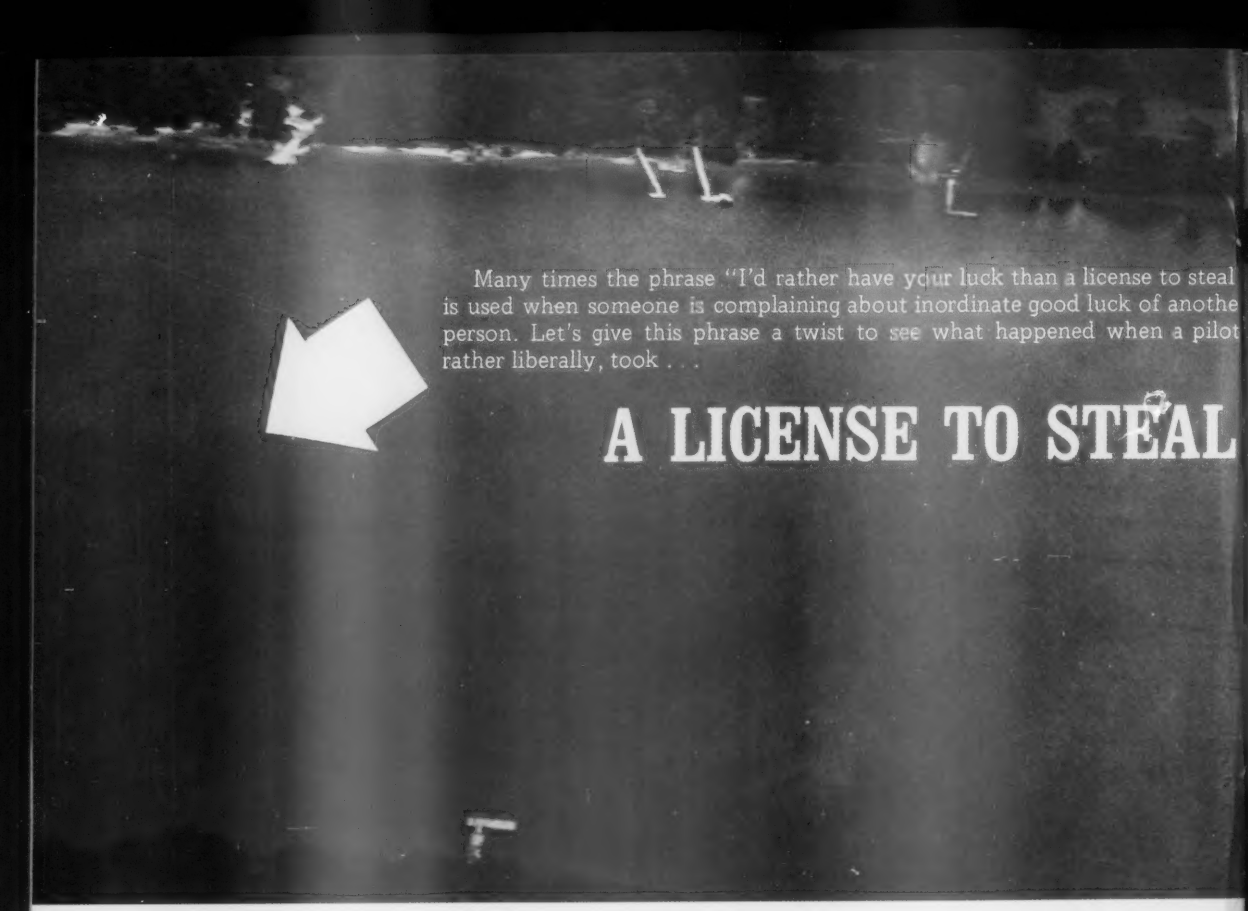
Touchdown was made on centerline, on speed. The hook was lowered passing the 6000-foot marker. As the F-4 crossed the M-21 gear at IDLE with speed brakes extended, the tower called a hook-skip. At this point the pilot noted his speed – 90 KCAS and decreasing. He elected to keep the aircraft on deck and engage the E-27 arresting gear (1500 feet from the upwind end of the runway).

The E-27 indicator lights were also inoperative, making him unsure of his position on the runway. Thinking he was past the E-27 cable, the pilot commenced heavy braking. Both main tires blew. Directional control was maintained with nosewheel steering. Shortly after the tires blew, the aircraft engaged the E-27 cable and came to a stop. It was shut down and towed back to the line.

The primary cause of this incident was pilot deviation from squadron SOP. Squadron procedures for an M-21 engagement require the pilot to advance the power upon crossing the gear and, in the event of a hook-skip, raise the hook and take the aircraft around. A contributing factor was that the arresting gear lights had been derigged in preparation for the arrival of a C-141.

These lighted arrows are the pilots' primary visual cue as to relative position of the arresting gear at night. Aircrews were not informed of this change in airfield configuration until entering downwind for landing.

It was recommended that notification of any alteration of normal field facilities, especially those concerning night operations, be forwarded to all squadrons promptly so that aircrews are aware of the situation and have an opportunity to brief the flight before takeoff.



Many times the phrase "I'd rather have your luck than a license to steal is used when someone is complaining about inordinate good luck of another person. Let's give this phrase a twist to see what happened when a pilot rather liberally, took . . .

A LICENSE TO STEAL

THE DUTY SAR crew of an H-1 was returning to base flying low, about 100 feet, along a river.

The first unusual thing that either of the two-man crew saw was a wire cable (above photo). Momentarily it appeared to stretch across the windshield. Then it appeared to slowly move up over the cockpit toward the rotor blades. In milliseconds the flight was over.

The pilot later stated the nose began to tuck, and his instinctive reaction was full back cyclic, which had no effect whatsoever. The crewman said that when they hit the wire, there were some rough oscillations, and he heard the pilot holler, "We're going in." In they went.

Neither was conscious of any impact. The crewman heard or felt a loud, tearing, cracking noise and saw debris flying up toward his face and a column of water coming in through the bubble. For him, things became quite hazy. The pilot, who apparently was not stunned, popped his harness under water and quickly went about getting himself and the crewman out. He was successful.

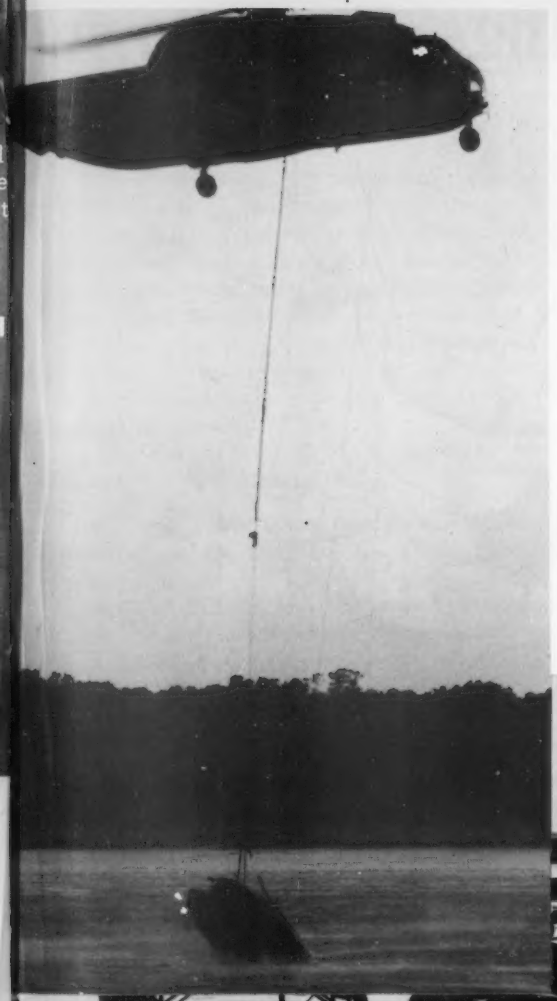
After surfacing (neither one knew how), the crewman complained of being choked. The pilot noted the crewman's helmet behind his head, *still strapped on*. He released it.

Both could see a couple of men manning a boat at a nearby pier. As soon as the civilians reached the scene, the downed crewmen were picked up. Neither the pilot nor his crewman was wearing a lifevest, and they stayed afloat until the boat arrived by treading water. Within minutes the base, alerted by a phone call, had another helicopter at the scene. Both crewmen, however, were taken back to base by ambulance. The crewman, the more seriously injured, had broken his collarbone.

The mishap board concluded the accident was caused by the pilot's failure to see and avoid the cable. The cable was not marked and was extremely difficult to see. It was not depicted on any aeronautical chart. Most of the crews assigned SAR duties didn't even know it existed. Since the accident, the training syllabus now includes indoctrination as to the location and height of most obstructions within a 15-mile radius of the station. Further, all SAR crews are now required to wear lifevests.

One endorser commented that the maximum altitude of 300 feet within 5 miles of Homeplate is established to preclude interference by helos with fixed-wing traffic and is not intended to give license to imprudent flying. The pilot was taken to task for not properly weighing the risks of extremely low altitude flight against mission requirements. Another endorser pointed out that the pilot operated his aircraft within the bounds of all rules and regulations, but in a manner not justified by the mission.

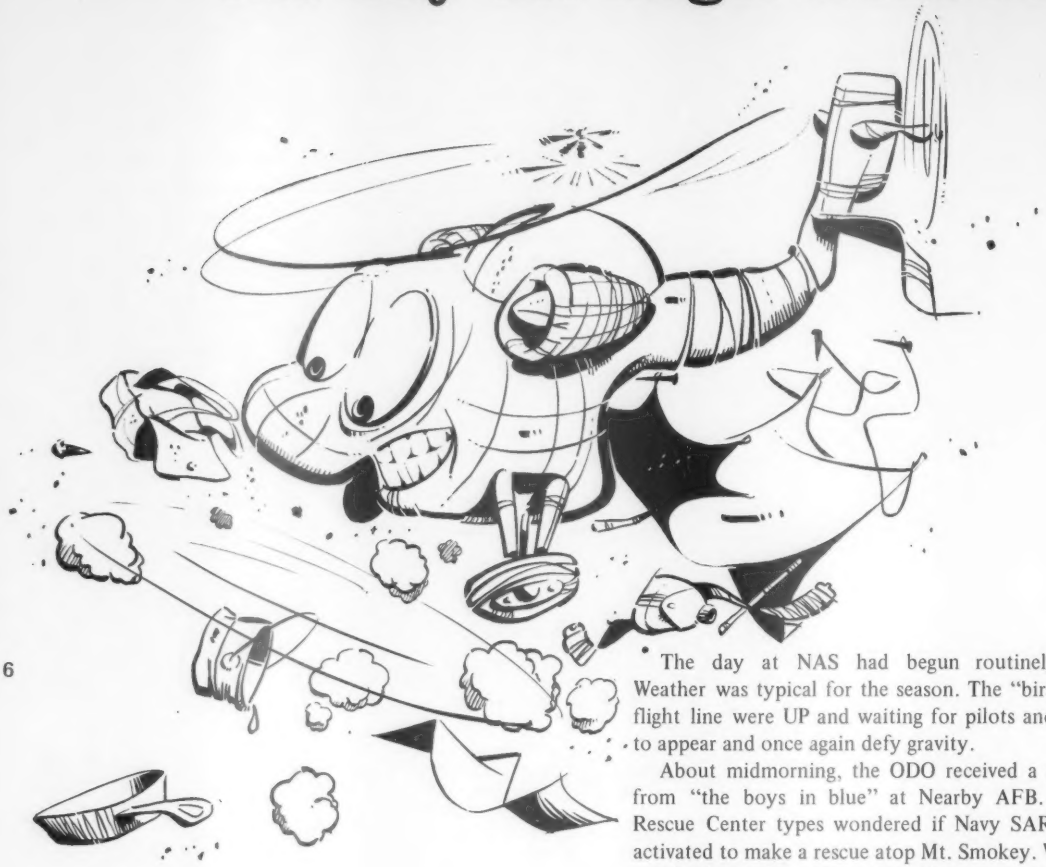
SAR helicopter pilots, naturally, become quite proficient at low altitude flight, thereby encouraging them to fly lower even when not required. This increases their exposure to inherent dangers. These dangers include the possibility of collisions of all kinds – cables, trees, water, birds, you name it. Helo flying requires a keen sense of judgment and finesse when operating at altitudes where obstructions abound. Unnecessary flight at low altitudes is just asking for trouble. ◄



Left: An H-53 attempts to hook out the H-1.

Below: Recovered pieces were eventually returned to base for investigation.

The Day the Angel Went Down



THE SDO's messenger burst into the duty office and shouted, "Sir, sir, call Security and Medical, quick! The ASO has flipped!" The SDO calmed the messenger long enough to find the reason for his outburst. It seems the messenger was making a routine check of the office spaces when he walked by the ASO's office and saw the safety officer pointing a finger at a pilot (he thought it was a gun) and heard the ASO say, "You *delta sierra,* I'll kill you."

The crisis blew over quickly, but only after the SDO had satisfied himself that mayhem would not be committed. As a matter of fact, after the SDO heard the pilot's story, *his* blood pressure rose while unvoiced thoughts of corporal punishment filled his head. Why did the ASO act as he did, and why did the SDO also become agitated? See for yourself . . .

The day at NAS had begun routinely enough. Weather was typical for the season. The "birds" on the flight line were UP and waiting for pilots and crewmen to appear and once again defy gravity.

About midmorning, the ODO received a phone call from "the boys in blue" at Nearby AFB. The Area Rescue Center types wondered if Navy SAR could be activated to make a rescue atop Mt. Smokey. Why not?

The duty SAR crew, as was their wont, was airborne at the time and was quickly recalled to refuel, brief, and pick up a flight surgeon. Since their mission meant going "way up there" (over 13,000 feet), the SAR bird was stripped of all unnecessary equipment to lighten its load. *They* decided to dispense with the services of a copilot – also to save weight.

The helo launched, ready for action, in just under an hour after the SAR request. The pilot was asked to pick up a ranger enroute to the scene. Landing for the ranger, the pilot decided to offload two crewmen to save more weight. The ranger was put in the copilot's seat. The doctor and one crewman were aft.

Upon reaching the scene, they made a couple of passes to check terrain clearances, power settings, and the wind. The rugged terrain would have necessitated a 100-foot hover – to which the pilot said, no thanks. So he decided to land near a lake about 2 miles away, where a Boy Scout troop was camped.

The pilot made several passes before attempting to land. Transition to hover was normal, with 96 percent Ng and 100 percent Nr. The crewman reported their rotor wash was blowing camping gear everywhichaways. The pilot made a turn to observe the havoc he was creating and decided to wave off.

From that moment, time and altitude ran out. After 50-100 yards of forward movement, the low RPM warning light came on and the audio tone sounded. The pilot noted Nr at 92 percent and decreasing. Vainly selecting max beep, he lowered the nose and announced on the ICS, "We're in trouble. We're not going to make it." Touchdown occurred among rocks and boulders and the helo incurred probable strike damage. Fortunately, no one suffered serious injury, and all were returned to base by another helicopter later.

Now, back to Ops. The reason for the ASO's threat was that the pilot 'fessed up that:

- He had not performed a hover check,
- He had not computed power available against power required,
- His departure route was upslope (the other choice was also poor, it was downwind),
- He rushed his departure when he decided to break hover after blowing the Scout's camping gear all around, and
- He compounded initial rotor decay with up collective.

When a SAR bird on a mission to rescue others goes down, that smarts! And you want to know something else? The CO, during a recent standdown, had cautioned all pilots not to let their enthusiasm to complete a mission put them in a dangerous situation. He had also discussed a recent helicopter accident that cost a SAR crew their lives, while attempting to save others.

For all you helicopter pilots operating in mountainous regions, let's make one thing perfectly clear, *transcending all else,* experience gleaned the hard way dictates observing the following prudential rules:

- Easy on the controls.
- Maintain airspeed.
- Fly out at the first sign of power settling.
- Use any means available to determine wind direction and velocity.
- Make power checks to see if power available is more than power required.
- Plan all approaches with an escape route for easy waveoff. ◄

Do You Make These Errors?

Pilots and flight engineers:

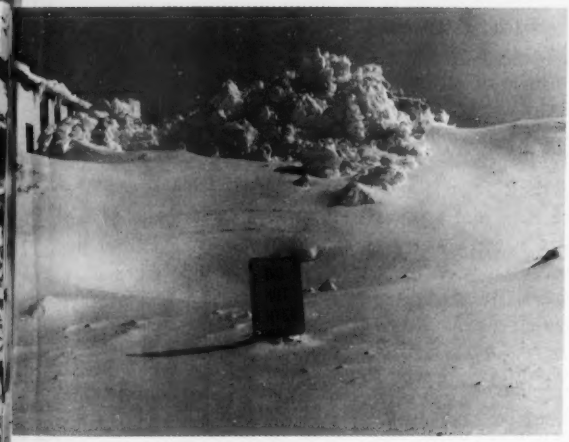
Assume the gage is wrong and "it'll probably be ok"
Make up your mind to land on the first attempt
Continue on, hoping the weather forecast is wrong
Just have to do something with your left hand, besides steering, after landing
Shortcut the preflight
Start engines out of sequence
Fail to take fuel samples on the road
Penetrate thunderstorms above 6000 feet when unnecessary.

Maintenance personnel:

Plug in power without an all-clear signal
Fail to clean up mess after a job
Leave Mickey Mouse ears in the line shack
Use anything available as a workstand
Fail to brief crew prior to towing
Fail to report broken GSE equipment
Fail to inventory toolbox after a job
Leave running GSE equipment unattended
Walk in danger zone when props are turning
Operate GSE when not qualified.

VXN *Safety Bulletin*

COLD WEATHER OPERATIONS



WINTER operations, more specifically cold weather operations, are guaranteed to turn routine operations into real problems unless you are prepared, knowledgeable, and experienced. We're going to assume that you fit into one of two categories: i.e., you're about to get your first taste of cold weather operations after the training command; or you've been one of the lucky ones since you got your wings, and your duty from December to April has been at such exotic places as *Gitmo, Dago, Rosey Roads*, Cubi, or Hawaii.

If you're in the latter category, remain absolutely q-u-i-e-t. Your fellow aviators hold you in utter contempt. You haven't lived, man. Your education has been neglected, and whatever happens, their attitude is that it couldn't happen to a nicer guy.

The first and only apology we're going to make is that we don't intend this article to be all-inclusive. Get your smarts from your NATOPS Manual. And, listen carefully when your friendly flight surgeon discourses about physiology, exposure, windchill, and what to do about the sniffles which mysteriously begin Friday afternoon at Happy Hour.

First Step – Planning

There's a procedure followed religiously by nearly all aviators called planning. Do me a favor. After you've scanned this article, break out the NATOPS Manual for your bird and see what words of wisdom are set forth about cold weather operations. (Hint: You'll probably find the good dope in Chapter 6.) You'll be surprised at all the good information there. Such things as *No-Nos, Cautions*, and *Warnings*. When you finish digesting that part of the Manual, you've already taken a giant step in the direction of proper planning.

Undoubtedly you'll remember the next time you're scheduled to fly that it's going to take you longer to get around the station in cold weather. You'll remember that the preflight will take almost twice as long. You'll remember that starting procedures are different from warm-weather starts. You'll remember that the clanks, groans, and dings are normal – instead of warm-weather pops, flappety-flaps, and wheezes.

Most certainly digesting the NATOPS Manual, you'll remember that flight plan alternates will be required more often – because weather conditions are worse, *and* change more quickly during winter months. You'll be smart enough to listen to the meteorologist's briefing with *both ears*. You'll be smart enough to wear all the required flight and survival gear, just in case the heater craps out or you're caught out in the "boonies" and have to make a precautionary landing.

Second Step – Walk Around

You've already planned to devote more time to that all-important preflight. You know when you start looking that you're going to look carefully at:

- Rotor heads, blades, and flight controls to ensure they are free of ice or snow.
- Engine inlet areas for evidence of ice.
- All parts under protective covers.
- The ducts, drains, struts, and skids or gear to be sure they're clear of snow, frost, or ice.

Away from base, you've already removed the battery the night before and are careful to reinstall it, fully charged, before starting. At Homeplate, routinely check your battery voltage to ensure a full charge. Continued

Third Step – Starting/Engaging

Just as the "good book" says, you inspect the ground before starting and engaging to ensure a firm, *but not frozen*, area. To avoid a real wild ride, have the line crew move your bird to a clear or prepared area, if necessary. When you crank that recip or light off that turbine, you've already followed the steps to avoid cold hang-up. Have the lineman plug in the auxiliary power to avoid unnecessary drain on the battery, right? Of course you remember to eyeball the engine oil pressure to make sure it begins to climb, and you know what limits are normal for your N_g, TIT, and combining gearbox temperature.

Fourth Step – Taxi

You're expecting your helo to slide or skid a bit, and you've already made plans to taxi very carefully. Before you even begin to move, you allowed extra time for your radios and navaids to warm up. You're not worried if your brakes fail or if you're suddenly IFR just 20 feet from the chocks. You know you can stop smoothly using SOP.

No one has to tell you that rotor blades and snow drifts don't mix. You plan to taxi right down the middle of the plowed taxiway – leaving plenty of room between the rotor blade tips and the snowbanks.

Fifth Step – Takeoff/Landing

After taxiing out cautiously, or approaching to land, the uppermost thought in your mind is to find a clear area. There's no need to create IFR conditions, with blowing snow, when visibility is "forever." Occasionally, there isn't going to be any bare concrete; so you prepare yourself for takeoff or landing accordingly. You want to get airborne or land with the minimum fuss and commotion. After takeoff from wet snow or slush, you don't forget to cycle your gear a time or two – just to make sure it doesn't freeze in the UP position.

Sixth Step – Cruising

You're well aware of fast moving fronts, unpredicted visible moisture, and busted forecasts, but you aren't fazed. You know what deicing/anti-icing systems you have. You know how long they'll operate, and before takeoff, you turned on the ones you needed.

Since you're on a training flight, you aren't concerned about pushing your luck. When the unexpected occurs, it really isn't unexpected because you have a plan and execute it smartly. For example, if ice or snow *BEGINS* to accumulate on the windshield wipers, pitot tubes, or wing stubs, you've already started to descend and are looking for a place to land. While in your descent, you took time to notify Center or a FSS, and you're already composing the words to use when you get to a telephone to let your buddies know where you are.

Seventh Step – Precautionary Landing

The times you might have to set'er down in the "toolies" are few and far between, but you're prepared if someday you must. You know snow depth is less in open areas where drift pile-up is negligible. You've a general idea of the terrain under the snow, and as usual, you expect the worst and are prepared for whatever happens. You plan an approach to land with no hover, but if suddenly you go IFR, the waveoff you execute is a thing of beauty. Once on deck, you don't reduce turns until you're sure the helo isn't going to break through the surface. Just to be sure, you even have a crewman get out and check the surface.

While your copilot and crew are preparing the helicopter and themselves for a cold soak, you're enroute to that highway/farm house/spa you spotted while descending, to report in and request help. You also remember that some of the best liberties occur where and when you least expect them.

Natch, while waiting for a thermos of hot coffee to take to your crew, you've already rounded up some tarps to cover your lonely bird overnight. You were even lucky enough to scrounge a couple of old, moldy scatter rugs to put under the gear. Your host then surprised you by mentioning that you might like to bring in your battery – that you would, indeed! No one's luck would be such that a preheater happened to be available, but you needn't worry about that because help from the squadron is on the way. That item will be there when you're ready to depart the following morning – weather permitting.

Quick Summary

You bet you had a delay – 24 hours worth – but since you already knew something about cold weather ops, your problems were not insurmountable. The nicest thing of all was that your temper didn't once flare. The only problem, barely mentioning, was what that joker, the SDO, really told your wife.

You can look back on that night you spent under the eiderdown quilt/by the camp fire/in your sleeping bag, secure in the knowledge that you didn't blow the whole thing. Your knowledge of cold weather operations plus your superb airmanship and leadership was the reason your 2-hour flight, which lasted 26 hours, ended without a ding to the bird or injury to the crew. ◄

At times there is nothing so unnatural as nature.

Carolyn Wells

SPECIAL TONIGHT ONLY

One Act Play

Now You See; Now You Don't

By CAPT Jim Gilmore, USMC
ASO HMM-362

Scene: A typical lineshack – about 15 minutes prior to recovery of the morning launch. Two actors, each with a cup of coffee, are engaged in conversation. They are the FLSNCO (flight line safety noncommissioned officer) and the ECC (experienced crew chief).

FLSNCO: We're sure doin' a lot of externals these days. How's your pendant holding up?

ECC: No sweat. I checked it last week. That "mutha" will dangle some loads. It's right!

FLSNCO: Yeah, and those hooks you can pickle from the inside sure save lots of time and unnecessary landings.

ECC: Right on!

FLSNCO: Say, how's Smith, your first mech, coming along? Is he 'bout ready for his NATOPS Crew Chief check?

ECC: Oh, he's doin' OK. One thing funny though, he wears his visor down when looking out the hellhole.

FLSNCO: He'd better. Don't you?

ECC: Naw. It gets in my way and it's a (censored) nuisance pulling it up and down. 'Nother thing, you have to keep it clean to see.

FLSNCO: Still, it's a good idea. Most of the pilots wear their visors down, so why not a crew chief during externals? Man, if anything came up through the hellhole and smacked your peepers . . .

ECC: Never "hatchee." Besides, I've got over a thousand hours and lots of externals. Never knew anything to fly up through the hellhole.

FLSNCO: Well, here comes No. 3. Let's go help turn her around for the next launch.

ECC: Holy sheep! Look at that hole in his visor. Hey, buddy, what happened to you?

Smith: You'll never believe this, but on our last external, something, and I don't know what, flew through the hellhole and hit my visor. Boy, if it hadn't been down, something would have bored right through my head. You guys ever been hit?

Silence

Curtain

Neither the FLSNCO nor the ECC could shed any light on what might have zapped the visor. Needless to say, when your head is anywhere near the hellhole, during externals, your bare face had better not be hanging out – bare.

In HMM-362, it is now SOP for crew chiefs to wear at least one visor down while engaged in externals. It would be a pretty sad state of affairs if some crew chief could never again look forward to next month's centerfold – just because he didn't lower his visor. ◄

Anymouse

Is the Aircraft Really Ready?

SITUATION: You're a stash pilot, fresh out of the training command. You love to fly, and you find eight other guys in the same boat. You only have three aircraft. One will be down on any given day because the aircraft are 25 years old.

You find yourself taking marginal aircraft because you just can't get parts. No parts, no fly. You really hate to down an aircraft. The mechs are tired of fixing those old birds. You find that things get fixed only on repeat gripes.

Finally, the day comes when it's your turn to fly. You perform the preflight, and your copilot tells you of a noise in the elevators. The starting unit is on, yet he still heard it. You go in and talk to maintenance. The usual . . . "Oh, it's been like that." Just the words you wanted to hear.

Then you hear yourself say, "No, I've never heard that noise before. I'd down this plane if I was in the training command, and I'm going to down it now. I'll make them check it out." You down it, and they find the bearings in the elevators are about gone. The chief tells you it may have failed on the next hop. No elevator . . . I don't know *that* emergency procedure.

All I can say is, trust your own judgment and down the bird if you're not satisfied with the way it checks out . . . everytime!

No-gomouse

To go or not to go is a problem not peculiar to stash pilots. Each pilot faces it every time he mans an aircraft. The only solution is to give your bird a good check and, as you indicate, let your conscience be your guide. If it doesn't measure up to standards, either yours or those established by higher authority, then down it. It's as simple as that.

No! Hey! Hold It!

I HOLLERED everything I knew to make the crewman stop. I waved my arms trying to get his attention – to no avail.

It was about 1500, and I was observing a helicopter launch at NAS Imperial Beach. A helicopter was turned up and rotors engaged despite an open transmission door.

A lineman saw the open door and climbed up on a sponson. I knew what he was going to do. That's when I went into my shouting and dance act. I guess I really knew he wouldn't see or hear me because I was so far away, but I had to try to warn him anyway.

Luckily, nothing gory happened. He reached up, secured the door, then jumped back down. Why the crew turned No. 2 before securing the door I don't know. There's a real danger of a person being knocked down, or burned by the engine, not to mention the possibility of being crowned by the rotor blades.

Shookmouse

The purpose of Anymouse (anonymous) Reports is to help prevent or overcome dangerous situations. They are submitted by Naval and Marine Corps aviation personnel who have had hazardous or unsafe aviation experiences. These reports need not be signed. Self-mailing forms for writing Anymouse Reports are available in readyrooms and line shacks. All reports are considered for appropriate action.

REPORT AN INCIDENT, PREVENT AN ACCIDENT

Someone new on the line would never have done that. It takes a person who has been around long enough to realize that certain functions can be performed despite the hazard. Linemen and flight deck personnel usually go through three stages, if they live long enough – cautious (while learning the ropes), contemptuous (during an intermediate period), and respectful (after they've had a close call or two). We suspect this fellow was working his way through the second stage.

Now, my *Vigilante* has a 3000 psi pneumatic system. In addition to lowering the flaps in case of . . . it supplies air to operate the canopies. So when the gage read zero, the "can-do" line crew hustled a servicing cart out and, before the crew arrived for preflight, hooked up the hose and smartly put 3000 pounds – *into the hydraulic reservoir*. The aircraft responded by hemorrhaging hydraulic fluid and fuel. Hydraulic lines, control cables, waveguides, and two fuel tanks were damaged. Eighty-five millimeter AAA has done less damage over Ninh Binh.

The quote of the week was, "We were just trying to show you how good we are."

The can-do spirit does and should exist, but please let it never be a substitute for know-how, common sense, and proper procedure. All the goodwill in the world can't prevent broken airplanes. There *is* a right way to do it, and *that* is the way to show how good you are.

Vigemouse

Right on!

Where Have All the Can-Do Hustlers Gone?

I'LL tell you where they went. They went to that lovely air station where I stopped recently.

It had been a beautiful cross-country – lots of flight time and a RON in the world's finest city.

The Worst Possible Time

INSTRUMENT lights on an F-4J failed at the worst possible time – about halfway down the cat on a night IFR launch. Emergency floods were on dim, but did not illuminate the attitude gyro. The grimes light was focused on the attitude gyro, but was dislodged by the acceleration.

The pilot rotated on the AOA indexer and flew a donut airspeed to 8000 feet. The RIO's instrument lights also failed, but he could see the altimeter by reflections from the console lights.

Recommendations: All aircraft should be checked for proper aiming of the emergency floods prior to launch. Also, it is recommended that rewiring of the small floodlight, above the attitude gyro, to the emergency flood system vice the instrument lights be considered.

ASOmouse

Only those who have been flung into the "inkwell" can appreciate such a close one. Your Anymouse report has been forwarded to NAVAIRSYSCOM for consideration of your rewiring recommendation.

...for navigators only...

A Piece of Ca

By LT C. A. Harrison, VP-30
Adapted from "A No Brainer,"
by CAPT D. P. Orlando
Aug 72 *Combat Crew*

". . . . the navigation system will continuously display aircraft position and provide information to guide the aircraft to a predetermined position."

SOUNDS like manufacturer's promotion literature, or maybe the aircraft overview course at the replacement squadron. Most navigators of long-range aircraft are going to hear that statement, smile knowingly, then continue with their more realistic approach to navigating their aircraft.

Nevertheless, this statement was paraphrased from the NATOPS manual of an advanced design, long-range aircraft, and more and more often, as systems operating experience and component reliability increase, the nav system does function as advertised . . . and with a surprising degree of accuracy.

The "piece of cake" flight is becoming the rule rather than the exception, especially where routine point-to-point navigation is concerned. Now, couple the "piece of cake" flight with the average good navigator (who has, say a year or more and maybe 800 hours with his aircraft) and let a special situation develop. The navigator, admit it or not, is beginning to get bored by routine navigation. This navigator knows about complacency. He works hard at crew coordination, and his navigation procedures are flawless; but the routine point-to-point just doesn't hold the challenge that it once did. He remembers back in nav school where they gave him a bubble-pipe, let him monitor mag heading, indicated airspeed, and pressure altitude, let him take a LORAN A fix every 2 hours (for confidence!), and he

navigated. Boy, did he navigate. Six hours from Point A to Point B, or roundrobin from Point A back to Point A hitting most of the alphabet along the way. That was a challenge, and it was hectic. If he dropped his dividers, he always got stabbed and usually missed the next two AIREPS.

The replacement training squadron showed him how an inertial system worked, showed him how easy it was to DR with a continuous doppler DA and GS, showed him that there were (amazingly enough) compass cards which indicated TH and airspeed indicators which read directly in TAS. He ran scared for awhile, but he believed the systems and soon learned to operate them. He remembered all those nav school DR and celestial instructors who admonished him to back up those systems . . . and he did.

Then he began to realize the reliability of the systems, began to fly "piece of cake" flights. Experience crept in, and he began to relax. At first, the change was welcome. He'll never forget the first flight on which he had time to eat a flight lunch, or the next flight when he found time to go back and get his own coffee and put the right amount of sugar in it. He was working now like a professional navigator, very calmly and efficiently, but most importantly, very confidently. He began to bet beers on his ETAs. Then boredom crept in on the heels of a string of "piece of cake" flights, and so any flight characterized by excellent navigation procedures, few unplanned heading changes, and on-the-money arrival, became just another "piece of cake."

Cake

Then he cleaned out his closet and found some old nav school handouts. Local apparent noon? Celestial land fall? Parallax in altitude? CONSOL? Familiar terms all, but no one had need of these techniques in navigating *his* aircraft. But he was curious. If they worked in any aircraft, they should work in his aircraft, and here was a chance to try something new.

At first he was cautious. He still used LORAN and TACAN as primary navaids for verifying his systems. He wasn't going to sacrifice navigation of the aircraft to his new game. But wasn't it fun to maintain course control on the GC from Rota to Shad using only Polaris and, of course, on those day translants, it was no problem to maintain speed control with the sun always ahead of or behind the aircraft. And, by golly, by cranking out a CEX on each of his increasingly frequent celestial observations, he found that the old inertial platform really did line up on true north and was usually damnably accurate in doing so.

By now, he was shunning TACAN and LORAN fixes, using them only to cross-check the celestial observations which he was using to verify his systems. Knowing, however, that practicing these seldom used techniques might cause him to make an error, he only practiced them for short periods of time, only on the "piece of cake" flights, and always with radio navaids for a cross-check. This ensured that the job of flying the aircraft always received first priority.

Then he started to spread out to other techniques. He reintroduced himself to the Air Almanac and won a beer from the copilot by accurately predicting the time and position of morning civil twilight during a red-eye special to Rota. Then on the way home from that trip, he forecast sunset (and was amazed when it occurred when he thought it would). He even began to use the Air Almanac Sky Diagrams. The Sky Diagrams received his special attention, and as he learned to locate and shoot the brighter planets and stars, the flight engineer began to wonder why there were fewer requests to dim the overhead rotating beacon during celestial shots.

Even the plane commander began to notice. AIREPS were ready for his scrutiny 5 minutes before ETA. The TACAN read within just miles of the TCA entry points at ETA. When the navigator checked in with an OSV (ocean station vessel), he told the OSV where he (the Nav) was and just requested radar verification. The plane commander also noticed that the radar landfall had been

within 1 mile of DR position on the last trip to the Azores. It had been Nav who reminded the copilot to turn on the TACAN and set the numbers for Halifax when they had passed south of Nova Scotia on the GC returning home from the Azores.

Then one day, it was no longer a game. Just as there are "piece of cake" transits, there are transits when nothing goes right. And this was going to be a doozie! The doppler had tested good on deck, but the memory light never extinguished after takeoff. The fuzes were all good, and even the flight tech's left-foot troubleshooting failed to establish a doppler lockon. But the inertial position looked good, and a quick CEX proved that the old platform had sure enough found true north again. Then without warning, the platform dumped – more amber advisories than he'd ever seen. OK. So he'd LORAN-igate and pick up his wind by carrying a NW plot and blowing in to his LORAN fixes. Besides, the North Atlantic wind forecasts are always in the ballpark, and mostly in the infield. Turn on the LORAN set – no horizontal deflection on the scope. No CONSOL out here either, and the only OSV enroute was NOTAMed off station with a medical emergency.

Now, it's really no game, and he didn't smile when he flipped the pressure hull shutter and shoved the sextant periscope back out through the mount.

Now, most navigators precompute and shoot, but to do this, you have to predict the time of your shot, and that's awfully hard to do when you're below a broken stratiform layer – a black, thick one. So he went to spot shots and postcomputation, and it wasn't really too hard for an old bubble-pipe pro like him. But he wondered where he'd be if he had limited his celestial practice to squadron minimum requirements instead of playing his games on the "piece of cake" flights.

So much for range control, the sun would give him good speedlines – until sunset. And he wouldn't miss the inertial TH either, because he could pick up mag compass deviation from a CEX on each shot. The old met brief would have to do for winds to hold his course.

Later in the flight, the sun shots were getting harder to come by as the sun went lower, and the layers between which they'd been flying started to merge ahead of the aircraft. Just about the time they were completely enveloped in clouds, they broke through on top, and there was the moon in their 5 o'clock position. It was not quite twilight yet, but, by golly, you could see the moon. No one ever shot the moon in his squadron. Said they couldn't get it to come out right. But he'd shot the moon during his games – applied parallax in altitude, upper or lower limb corrections – and he thought his results had been good. So the moon gave him his speedlines back.

As they continued toward the coast, he consulted his Sky Diagrams. Those bright stars and planets he'd circled during flight planning were starting to be visible – and Aldebaran, Venus, and the Moon would give him an inside fix. He shot and plotted with a lot of misgivings and a shaky pencil. Then, based on the fix, ordered up an 8-degree heading change and made a 4-minute RETA for the TCA entry point. He should be within TACAN range now, and maybe within radar range. So he gave the copilot the TACAN numbers and watched while he spun them in and switched to REC. It seemed like the HSI bearing pointer would rotate CCW forever, but finally it stopped, pointing right at the feducial mark on the HSI. The copilot switched the TACAN to T/R and he and the Nav watched while the DME numbers tumbled endlessly. Probably a false bearing and a radial lockon since the DME wouldn't come in.

With ETA only 2 minutes away, Nav stumbled back to his table just in time to see the numbers on his own DME tumble in place like the cherries on a one-armed bandit. One minute later, after plotting his TACAN fix position, he smiled knowingly as he heard ATC advise the crew that they were in radar contact 2 miles west of their planned TCA entry point.

It had been quite a flight, but despite the poor systems, everything had gone pretty well. In fact, it had been a "piece of cake." ◄

The following narrative of an actual event strongly emphasizes the need, expressed in the preceding article, "Piece of Cake," for navigators to maintain the "old" skills even when there is no apparent need. This narrative lends credence to the old saying that . . .

truth is stranger than fiction

By LT Darryel L. Roberds, VT-10

THE INERTIAL had dumped right after takeoff. There was no inflight align capability, so heading information plus pitch and roll were all that could be expected from the ASN-42 inertial system. The doppler memory light was flashing on and off and was, therefore, considered unreliable. The air mass computer was still working, so the navigator could insert forecast winds and be provided with GPI coordinates. It was a good idea and would have worked; except when he tried it, the latitude counters ran backwards, and the longitude counters didn't move at all.

The mission was a result of a ready alert launch, and the tactical brief had been sparse, leaving the actual planning of on-station tactics to the PPTC (patrol plane tactical coordinator). Navigation, therefore, fell to the new NFO who had joined the crew only 8 days before. The new NFO would have to construct a howgozit for the flight and plot the area of probability on the charts. The flight originated at MCAS Far East, and plans were made to refuel at an Air Force base on the return leg to allow more time on station. The tactical portion of the flight was to be conducted completely passively, and at a high altitude. Radar could not be used in the probability area. There was one LORAN line that *might* be usable in the area, but the flight was conducted at night, which meant poor LORAN reception.

Winds were computed while fixing information was available and were determined to be quite different from those forecast. Dead reckoning put the aircraft in the search area, and the assigned altitude was below the cloud tops, so the sextants were so much extra baggage.

The search pattern was laid in an expanding circle and monitoring was done with negative results. Additional sonobuoys were dropped, and the on-station time was extended to the very limit of the safe return fuel margin. When the second fuel/distance position was plotted to the left of the on-station line of the howgozit, the plane headed for the Air Force base for fuel with an ETE of 3 hours.

When the aircraft was clear of the operating area, the radar was activated to obtain a fix off a small island which should have been within range. But no island was visible. In short order, the PPTC started to check the new NFO's navigation logs and charts. Numerous errors began to appear. First, the wind calculations were found to be in error by 50 knots, and all of it had been on the tail outbound and would now be on the nose. The howgozit was checked and found to have been computed for a no-wind condition. Replotting the DR positions showed the aircraft to be over 200 miles farther from their fuel supply than thought, with an additional 50 knots of wind on the nose to contend with.

Maximum fuel conservation was commenced and sweat began to flow. A little over an hour after the return flight was commenced, a celestial LOP was obtained and, crossed with a somewhat unreliable LORAN LOP, provided a fix which showed the aircraft position to be 175 miles further from fuel than was planned. About 175 miles with an extra 50 knots of headwind meant an additional flight time of 40 minutes and an additional fuel requirement of approximately 3000 pounds.

Presently, a radar fix was obtained, and further refinement of the aircraft's position showed the DR position to be within 30 miles of the actual fix.

The aircraft made it to the Air Force base, but landed with an indicated fuel supply of less than 3000 lbs. The importance of good navigation is amply illustrated by the fact that, in this aircraft, fuel indications of less than 5000 lbs are considered unreliable! ◄

Naval Aviation Safety Program Policy

OPNAVINST 3750.14C of 30 Aug 1972 discusses the naval aviation safety program policy in some detail. According to this directive, *the primary function of naval aviation is the maintenance of a high degree of readiness for prompt and sustained combat operations.* The temporary or permanent loss of aviation personnel or material resources because of a mishap reduces this combat readiness.

The naval aviation safety program encompasses all aspects of safety involved with the design, procurement, operations, training, maintenance, and support of aircraft, aviation ships, facilities, and associated equipment. The objective of the program is to assist in the attainment of the highest degree of readiness possible through the prevention of aircraft mishaps and the conservation of personnel and material assets.

The aviation safety program is executed by the operational command structure and is coordinated with the specified support programs defined in OPNAVINST 5100.8A. Such a safety program must be tailored to the specific needs of the particular command level. However, there are certain representative elements appropriate to all aviation safety programs:

- Developing, coordinating, and implementing safety *plans*, including accident prevention, mishap investigation, safety surveys, and inspections.
- Monitoring the effectiveness of training, operational and maintenance procedures, and recommendation of appropriate corrective action.
- Conducting or participating in hazard/trend analysis and monitoring the correction of deficiencies discovered.
- Collecting and disseminating mishap and safety

information.

- Effecting liaison with other safety organizations.
- Developing and implementing safety education, training, indoctrination, and motivation programs.
- Participating in group safety efforts such as councils and standardization boards.
- Directing, or participating in mishap investigations and followup on recommendations and action requirements resulting therefrom.
- Developing an integrated command program to ensure compliance with current mishap, injury, and other safety-related reporting requirements.

Readiness and safety are primary responsibilities of command and the line organization that supports the commander. Accident prevention is effected through the professional competence of each individual in the command. The ASO (aviation safety officer) acts as an assistant to the commander to coordinate the implementation of the commander's safety program and to advise the commander of the degree of compliance with safety operating practices.

The assignment of safety officers is treated in detail. According to OPNAV:

- All ships, stations, and units concerned with routine operations of aircraft, as well as aviation command staffs, and all operational/training squadrons shall designate one naval aviator/naval flight officer, if available, as the organization's ASO. If the size and nature of operations warrant, one or more assistants may be designated. The ASO shall be the direct representative of the commanding officer/commander for all safety matters, except in commands having a separately designated safety officer assigned who is responsible for all safety matters.
- ASO billets shall be assigned to experienced personnel who exhibit exceptional capabilities and career potential. Safety officers will have department head status and participate in command functions at that level to promote freedom of action across all lines of functional and administrative responsibilities. Prior to assignment in that billet, they shall have completed a formal aviation safety officers' course.

Wherever possible, ASOs assigned to avjation staffs and major commands shall have had previous experience in aviation safety at the squadron level and have attended an advanced safety program management course, if available. ASOs assigned to aircraft squadrons, air wings, aviation ships, naval air stations, and air type commander staffs will occupy primary billets. ASOs on other aviation command staffs, or aboard ships required to designate an aviation safety officer, may be assigned on a collateral basis.

In order to provide continuity in the aviation safety program and to make optimum use of training facilities, the assignment of ASOs shall remain as stable as possible. Air wing and squadron aviation safety officers shall occupy that billet for at least 1 year, barring unusual or unforeseen circumstances. Staff level safety officers can normally be expected to remain in that billet for the duration of their assigned tour.

OPNAV 3750.14C concludes by enjoining each command to ensure that a vigorous aviation safety program is pursued on a continuing basis with the objective of enhancing readiness through accident-free operations. ◄

"The most important of the many lessons to be learned from this accident is that it is the individual aviator's responsibility to equip himself to react and conquer every possible emergency." – AAR Endorsement.

THE FROSTBITTEN BRONCO

TWO highly experienced pilots departed an Air Force base in an OV-10A *Bronco* on one leg of a weekend proficiency/navigation training flight. They were cleared to another AFB via flight plan route at 9000 feet. Enroute, the aircraft started picking up rime ice on the engine nacelles. They requested and received clearance to 11,000 feet. Still accumulating ice, they requested higher and were cleared to 15,000 feet. No further icing was encountered and the previously accumulated ice started to flake off.

Approximately 100 miles from destination, the pilot in command requested an update on destination weather. FSS informed him that it was the same as briefed (7000 broken, 10,000 overcast, 7 miles visibility with light rain). He then requested an enroute descent to 7000 feet. Center cleared them to descend. No icing was encountered during descent or at 7000 feet.

Sixty miles out from destination, with the copilot at the controls, the aircraft started to lose airspeed. The copilot lowered the nose slightly and added power. The aircraft responded normally. The copilot climbed back to his assigned altitude, and the pilot in command cycled the pitot heat switch to ensure it was still on (it had been turned on just prior to takeoff as part of the instrument takeoff checklist).

Approximately 10 minutes later, with the pilot in command at the controls, wings level, and engines at 96 percent, the altimeter started to unwind and the airspeed decrease. The pilot lowered the nose 20 degrees and added power, but noted no positive response from the airspeed indicator. He then brought the nose up to 20 degrees above the horizon, checked full power on the engines, and told the copilot that the aircraft still indicated a descent and was losing airspeed. The copilot responded, "Let's think about getting out of here." He (the copilot) then positioned himself in the seat, placed his hand on or near the seatpan ejection handle and started to lean forward and to the right to see the pilot's instrument panel. Simultaneously, the pilot in command pushed the nose over to 30 degrees below the horizon, resulting in negative G. This sudden G force apparently caused the ejection of the copilot.

The last readings the copilot saw were 5500 feet and 95 knots. The pilot in command saw debris coming up from the right side of the cockpit and realized that his copilot had ejected. With an airspeed of 90 knots, an altitude of 5000 feet, both decreasing, he too ejected.

The ejections of both pilots were successful. Shortly after landing, they made their way to a farmhouse and were later returned to a military facility, uninjured. The

Circle indicates where aircraft crashed.

aircraft crashed in the vicinity of the farmhouse (see photo).

According to the mishap board, the crash was the direct result of ejection by both pilots. The copilot was inadvertently ejected when the pilot in command subjected the aircraft to negative G. The pilot in command ejected because the copilot ejected and because of his instrument indications.

In its analysis, the mishap board stated:

"The pilot used destination weather, estimated 7000 broken, 10,000 overcast with 7 miles visibility, as being indicative of enroute weather. This was not the case, as a station 100 miles from destination had 1000 scattered, measured 1200 broken, 4200 overcast with 7 miles visibility and light rain. Instead of being below the overcast at 7000 feet as anticipated, he was in IFR conditions with an outside air temperature of -2.5°C.

"A lack of communication and coordination existed between the pilots at a most critical point in the sequence of events. The pilot in command made an abrupt attitude change of 50 degrees (from 20 degrees nose-up to 30 degrees nose-down) without informing the other pilot. The copilot had positioned himself for ejection without informing the pilot at the controls.

"Anxiety on the part of the copilot must also be considered. Just as a pilot not actually at the controls is more susceptible to airsickness than the pilot at the controls, so too is he more susceptible to the effects of anxiety in a stress situation. The copilot not only mentioned ejection earlier, but later positioned himself by placing his hand on the lower ejection handle. It is the board's opinion that the copilot did this not necessarily to eject, but to be "doing something" in place of flying the aircraft. The fact that he leaned forward and to the right to see the pilot's instrument panel led to this conclusion. The board does not feel that any pilot anticipating ejection would position himself so poorly.

"When the preliminary report of this aircraft accident was released, which indicated the loss of the altimeter, Air Force-trained pilots were quick to point out that by breaking the glass in the VSI, the altimeter can be regained in an unpressurized cockpit. Navy-trained pilots interviewed professed ignorance of such an easy and simple method to regain accurate pressure altitude indications."

Among other things, the mishap board recommended that:

1. Pilot ground training lectures review inadvertent icing conditions and their effect on the aircraft and procedures for loss of the pitot-static system.

2. That cockpit communication/coordination be reemphasized during an airborne emergency.

An endorser to the AAR commented:

"This is truly one of the classic, preventable mishaps that reappears from time to time and clearly, albeit expensively, points out that aviation safety action programs must include everyone. No rank or level of purported experience and capability is exempt. Commanders must set exacting standards and resolutely compel professional performance if further mishaps of this type are to be prevented." ◄

How do you know your altitude if, while solo, on instruments, you lose your airspeed indicator, and your VSI and altimeter are unreliable? The answer is, you don't, but it makes for an interesting flight.

How High Am I?

By Maj S. Badiner, USMCR

HEAVY rain had been falling at NAS Willow Grove for hours. Radar indicated a break in the rain that might last for half an hour, followed by more rain. The weather was 500 broken, 2000 overcast, tops above FL 240. The sky gradually lightened to a dull gray, and the rain became drizzle. I'd best launch while I had the chance. Start and pretakeoff checks were routine. Clearance was received . . . maintain 2000, expect FL 390 passing MXE.

Takeoff and climb were normal. I leveled at 2000 on instruments and checked in with Philly Departure. I was given a vector and cleared to 8000 feet. I pushed the go lever forward on my trusty *Crusader* and started up. At full power, 280 KIAS, I was only climbing at 2000 fpm (should have been 5000-6000 fpm). Calling out of 5000, I was cleared to 15,000, to report passing 8000, cleared on course, and given a frequency change.

"Hello, New York, this is Bluejay 21, leaving 6000 for 15,000. Will call out of eight."

"Roger, Bluejay, cleared to FL 390, call out of 180 and 230. Squawk 2100, turn left for vectors to EMI."

Boy, what a dog . . . 240 knots indicated, at full power, climbing only 2000 fpm . . . I'll lower the nose and pick up my climb schedule. Hey, what gives – 220, 200, 180 . . . oops, there goes my airspeed indicator. Pitot heat checked on. Oh, well, 10 units angle-of-attack will get me on top. "This is Bluejay 21 out of FL 230 for FL 390 (I think)." At 10½ units, full power rate of climb was down to 1000 fpm. At FL 240, I started to break out on top as briefed.

"Bluejay 21, say altitude and contact Washington Center." "Out of 260 for 390" (rate of climb now down to 500 fpm). Engine RPM 96 percent, good EGT and EPR, but fuel flow only 2500 pph (should have been about 4000 pph) . . . Maybe I have fuel control icing. A switch to manual fuel control increased fuel-flow only about 300 pph. Normal fuel control was reselected. "Washington Center, this is Bluejay 21 out of 260 for 390. I've lost my airspeed indicator and may have engine problems. Check NXX and ADW weather please."

"Roger, Bluejay, keep us informed." ADW weather was below minimums. NXX was 500 and 1 and deteriorating.

At FL 290, the *Crusader* would climb no higher . . . Boy, the way this thing handles, you'd think I was at FL 450 . . . *CLICK* . . . could it be? The cabin altimeter read 16,000 . . . 13,000 would have been closer to normal . . . but with old cockpit seals, it's difficult to be exact.

"Washington, this is Bluejay 21. I'm indicating FL 290, but I have reason to believe I'm higher. What are the reported tops in this area?"

"Bluejay, reported tops are FL 330-350." I looked down at the cloud deck far below me. "Bluejay, this is Washington, we'll keep you clear of all aircraft. What are your intentions?"

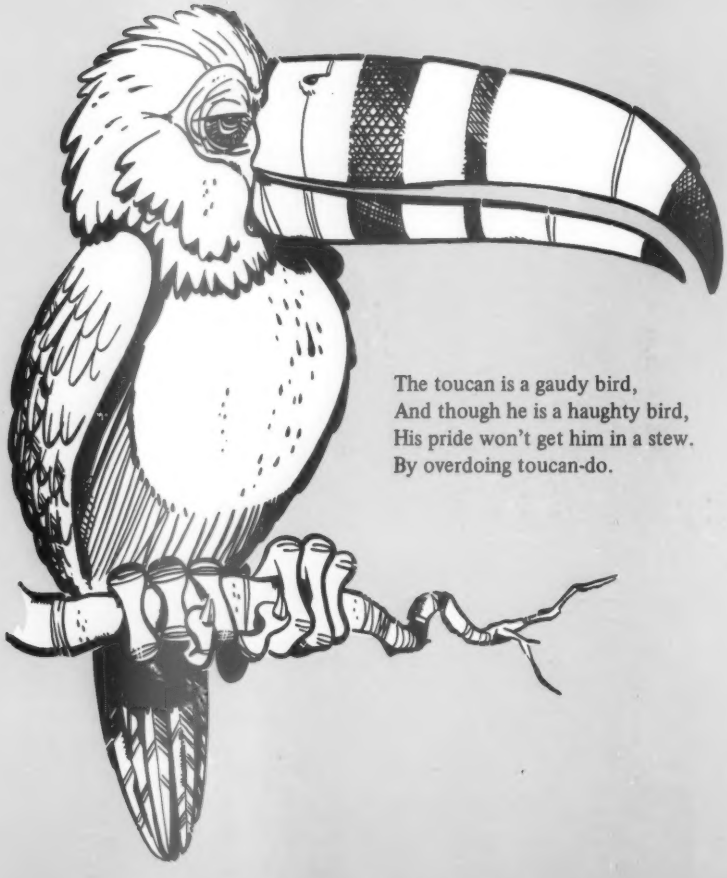
"I'll head west until I can see the ground and land VFR." (My destination NAS was VFR.) A ground speed-check indicated 450 against a 60 knot headwind. This gave me greater confidence that the engine was OK.

Fortuitously, after switching to Memphis Center, I was informed that an A-4 was airborne and could rendezvous to lead me in. The rendezvous was completed with the A-4 indicating 25,000 while my altimeter read 15,000. Aside from losing my radio and an unsafe nose gear, landing at NAS Memphis was uneventful. ◄

The Real Profess

Each of nature's flying creatures
To men who fly can serve as teachers.
See below for just a sample
Of lessons learned from their example.

The dove, dressed up in dullest grays,
Isn't known for flashy ways.
But when a hawk is after him
He has no peer at ACM.



The toucan is a gaudy bird,
And though he is a haughty bird,
His pride won't get him in a stew.
By overdoing toucan-do.

In the park the pigeon sits,
Giving all the statues fits.
His ordnance deliveree
Is noted for its accurcee.

essionals Return

By LT Norman E. Lane, MSC, USN

The flying squirrel is poorly named,
He has to glide to where he's aimed.
Since he preplans each unpow'r'd flight,
They almost always turn out right.

The woodcock hunters seek with guile,
He's very often missed a mile.
He knows he'll end up in the bag
If he does zig when he should zag.

The cockroach flies from wall to wall.
He's really not a bird at all.
But even the pariah roach
Checks his brakes on each approach.

At night, the owl can spot a fly
At fifty feet with just one eye.
But though he sees in infrared,
His skill does not go to his head.

The dodo never learned to think,
Found himself declared extinc'.
Modern dodos, birds or men,
Are destined for a similar end.

COLD IN

WHO gets colder in the icy blasts of winter: a girl in a miniskirt or a bareheaded man?

Would you believe a bareheaded man?

We can't vouch for the scientific methods behind this madness, but we have it on good authority that a great deal of heat goes out through your skull. (How about a bareheaded, baldheaded man thinking about a miniskirt?)

For the moment, tear your mind from the minis, and let's consider some more serious winter problems.

Every Navy/Marine airman may not be up against knee-deep snow and howling gales this winter, but at northern air stations – and even some farther south – and on carrier flight decks, heat loss and subsequent cold injury are potential hazards for many of us. And even if you personally intend to winter in the tropics, read on for the future.

The kind of cold injury depends on:

- Degree of cold.
- Duration of exposure.
- Environmental factors.

Chilblain's Mildest

Mildest of all cold injuries is chilblain. This is an inflamatory swelling caused by prolonged exposure of skin at temperatures ranging from the low 60s F on down to freezing. Dressing adequately and using a bland, soothing ointment takes care of the problem.

Another nonfreezing cold injury is trenchfoot or immersion foot. This comes from wearing wet, cold footgear for a long time or what NAVMED P-5052-29 (TB MED 81), the bible on cold injury, calls "outright immersion of the feet" at water temperatures in the neighborhood of 50°F or below. At the upper range of temperatures, you probably won't get immersion foot until 12 hours or more of exposure. But when the water temperature is 32°F, it doesn't take nearly as long.

The winter hazard you are most likely to encounter is frostbite – especially as a crewman working on a cold, windy flight deck or ashore at Quonset, Brunswick, or Yokosuka. And, don't forget, frostbite is something to consider in camping, hunting, and outdoor winter

INJURY

sports – even in shovelling snow and motorcycling.

When your skin is exposed to temperatures below the freezing point, water in the tissues of the skin and adjacent tissues crystallizes. The result is frostbite. The lower the temperature, the less time it takes. Add the windchill factor to low temperatures, and your exposed skin can freeze in seconds. In addition, one case of frostbite apparently increases your risk of getting another.

A word to the wise here – booze and beer affect your blood circulation, your judgment, and your keen perception. Who wants to pass out cold in the snow? You could get frostbite before you're found – you could even freeze to death.

The "buddy system" of watching for the yellow-white spots of frostbite is old but effective. But what do you do if you're by yourself? You can keep tabs on your hands and toes, but how about your face and ears?

A recognized authority on cold injury, CAPT E. E. Hedblom, MC, USN, author of the *Polar Manual,* says that you can subjectively sense blanching of the skin of your nose, ear, or cheek as a momentary tingling or "ping." Your face muscles won't work, and your skin loses feeling. Incidentally, if in severe cold, your face, hands, or feet *stop* hurting, you probably have frostbite.

So now you have frostbite – what next?

Forget everything you've heard about rubbing frostbite with slush or snow, or, in fact, rubbing it at all. Hold a warm hand on the blanched area until normal color returns – until the spot thaws and hurts again.

You can rewarm your frostbitten fingers against abdomen or armpit. If it's toes, hold them against a buddy's chest or abdomen under his outer clothing. Warming your heels at the same time thaws your toes better and faster. Once you have rewarmed the frostbitten area, be sure to protect it against further serious exposure to cold. Then, first chance you get, take your frostbite to a medic.

Somebody has said that the best treatment of frostbite is prevention. From head to foot, wear the protective clothing issued to you, and use your common

sense about exposure to cold. Make sure your shoes are roomy enough to let you move your toes to increase blood circulation, and wear gloves. Wear headgear and protect your face from icy winds with a face mask if your job calls for it.

Be careful not to let kerosene, gasoline, alcohol, or other fluids which freeze below 32°F get on you – they can cause quick frostbite and freezing. Touching cold, bare metal with your warm, moist hands can cause your skin to stick to it. Loss of flesh or quick frostbite can result.

General physical condition has some bearing on cold injury, so keep your body temperature and defenses up with good, hot meals and hot fluids. Get as much sleep and rest as possible.

In closing, a word about a hazard peculiar to the seafarer – man overboard. And man overboard in cold waters – or, for that matter, in temperate waters – is up against nature at her most ruthless if rescue is not speedy.

Keatinge, in his classic book, *Survival in Cold Water*, cites Molnar's conclusion from eyewitness accounts by survivors that most people died within 6 hours after immersion in water at 15°C (59°F) and within 1 hour in water at approximately 0°C (32°F). They survived indefinitely only if the water was warmer than 20°C (68°F).

According to a study reported in the *Sears Foundation Journal of Marine Research*, surface water over most of the sea outside the tropics is colder than 20°C (68°F) all year round and is never much warmer than 15°C (59°F) along the main North Atlantic sea routes and around most of northern Europe and North America. Keatinge concludes that this means people immersed for many hours in any temperate or polar waters are liable to die of hypothermia or low body temperature.

So what does all this mean to you?

It means that it's smart to wear protective clothing for its insulation value in air and water . . . smart to wear your flight deck or kapok life preserver with signal light . . . smart to watch your step topside . . . smart to hook into a safety line when you could fall overboard . . . smart not to get boozed up on liberty, then try to negotiate docks, gangplanks, and steel decks which are wet and slippery with night mists . . . smart, in fact, to stay alive. Keep an eye on your shipmates, but most of all look out for No. 1.

Besides, if winter comes, can spring be far behind? And bikinis beat miniskirts any day! ◄

Death by Ice?

"Some say the world will end in fire,
Some say in ice.
"From what I've tasted of desire
I hold with those who favor fire.
"But if I had to perish twice,
I think I know enough of hate
"To say that for destruction ice
is also great
"And would suffice."

Robert Frost

IT seems strange that the words of a poet should apply so poignantly to our latest aircraft accident and first tragedy in fiscal year 73 . . . but they do.

Recently, a KA-3B landed at an air base. The aircraft discharged two passengers, refueled, and taxied out approximately 1 hour later. Weather was 1400 foot overcast, temperature 29° with light drizzle and snow. Shortly after liftoff, the aircraft struck the ground in a nose-high attitude, exploded, and burned.

The aircraft had traveled approximately 12,000 feet from commencement of takeoff roll to impact. Both crewmen perished.

Draw your own conclusions.

Aviation commander's message

Wrong Interval

AN A-7 was cleared for a downwind entry to the runway at an outlying field. Additional traffic was a T-28. Downwind, the *Corsair II* sighted the T-28 at the 180-degree position. The A-7 altered his flight path to a wide, extended approach, taking what the pilot considered to be an appropriate interval.

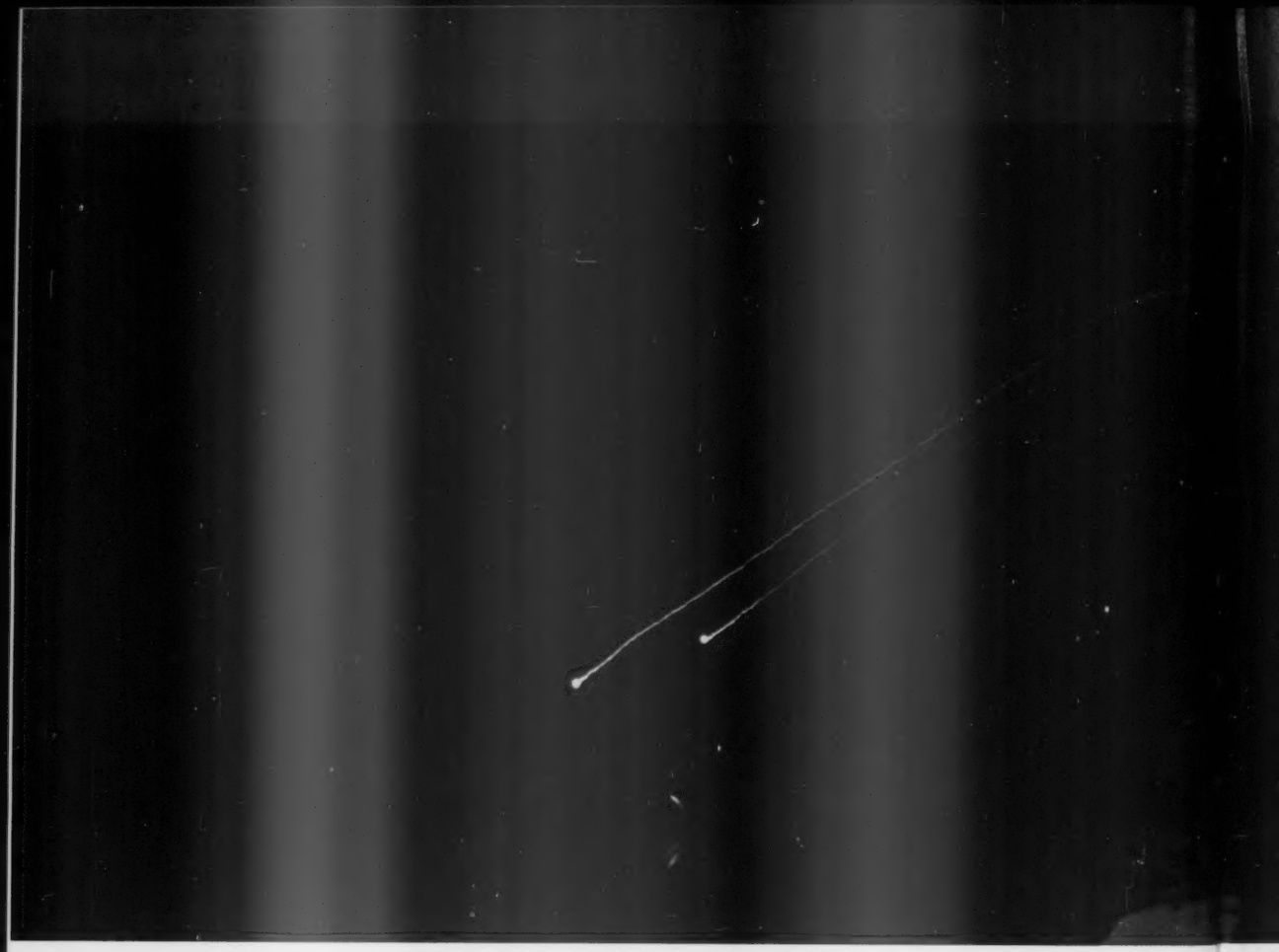
The T-28 was cleared for a touch-and-go and the A-7 for a full stop. On final, the jet started closing the recip to a less-than-comfortable interval. The A-7 pilot stated that as the T-28 touched down he considered taking a waveoff, but discounted this course of action since the prop was touch-and-go and his subsequent liftoff might result in a midair situation. If the T-28 aborted the touch-and-go, the A-7 pilot felt that ample time remained to wave off.

As the A-7 touched down, the T-28 was more than 3000 feet down the runway, with liftoff expected momentarily. The T-28 continued to roll, however, and the distance between aircraft closed rapidly. The A-7 pilot commenced heavy braking, and blew both tires. At this point, the T-28 was lifting off and drifting right.

The A-7's airspeed was greater than 100 knots, so the pilot elected to add power and take off. Takeoff was accomplished, and the tower notified of the blown tire problem. The pilot's intention was to return to Homefield.

The *Corsair II* subsequently made an uneventful short field arrestment.

This incident could have been prevented by closer attention to interval by the A-7 pilot or a waveoff when doubt first arose. Little damage was done, as it turned out, but you can't say the potential wasn't there.



OPINION:

The ASO Advocate of Safety

By LCDR Tim Cook
ASO, VFP-306

IN my civilian job, I'm an attorney. I'm required to take a position on a controversy and advocate that position to the best of my ability against an opponent who would like my position demolished; just as I would like his to be totally ignored. The impartial judge makes his decision by weighing and balancing the opposing views and, not infrequently, reaches a compromise of sorts.

As a safety officer in a reserve F-8 squadron, and looking back over my years as ASO in other outfits before I went to law school, I see a certain parallel.

The safety officer is the advocate of the "safe" way of doing virtually everything. To have a rational discussion, we must put aside the proposition that the safest way to run an aviation unit is to lock the birds in the barn. That is too unreasonable. Yet, the safety officer cannot let his position drift too far into "reasonableness," lest he be, in the language of the day, co-opted.

Sure, it's easy to see the ops officer's point of view

that a little bending here and there will do a lot to get certain hops out and improve readiness. "It's an operational requirement, and what good is a safe squadron if it can't operate?" *Don't bite.* Let *him* advocate that position . . . it's his job. Yours is to scream, and scream loud. The weather is below that required . . . the mandatory lecture hasn't been given . . . he hasn't flown for 2 weeks and didn't get an OFT hop . . . or whatever. But don't tacitly agree because you recognize the operational necessity. That isn't your job. *You* advocate 100 percent safety and let Rocket Three advocate 100 percent operations. Then let the CO earn his pay by making an intelligent decision based upon clear, cogent arguments on both sides.

The same is true with the maintenance officer and conditionally or marginally UP aircraft. So the maintenance officer says, "Hell, I'll fly it myself." . . . *No dice!* No TACAN, but he's got a wingie. *No!* Six repeat gripes on the gyro, but "we've got it fixed now." *Not off the cat at night!*

How about shortcuts on the line or in the hangar – forgetting Mickey Mouse ears, failing to use MRC cards, using a wrench as a hammer, standing on a toolbox rather than getting a workstand? Surely, you must correct the discrepancy on the spot, but follow up, too. Go to the opposing counsel, i.e., the maintenance officer, in the above safety violations, and see if he'll take appropriate action. If he opposes your position, take it to "court." Your client – no injuries, no fatalities, no damaged equipment – is too important to let it slide. You can't be "reasonable" with carelessness.

So far, the whole thing sounds like you're turning the readyroom into, alternately, a battlefield and a courtroom. It need not be so.

Many have observed that the safety officer has to get along with his mates and must be the type of person who can be respected and admired. Constant bickering and fault-finding does not promote that image.

So the operative methods used to advocate your position must be discreet. You must "know your stuff" so that your argument has basis. And you cannot be so blinded by your position that you lose control of your own emotions. But reasonableness of conduct does not equate with "being reasonable" and accepting the other side's justification for an unsafe act or procedure.

One last note. At the outset, I recognized that as an individual you may be able to see and even conditionally agree with the opposing point of view. Although you must not let that lessen the advocacy of your own position, it can act as a cushion to soften the letdown when you lose. Remember, the commanding officer must *balance* two views, and he may decide that expedience should carry the day.

So be it . . . your job as advisor to the commanding officer has been performed, and he has been able to make an intelligent, well-informed decision. Don't get mad. Don't even try to get even. Just carry on . . . and if it's unsafe, fight it . . . all the way to the "supreme court." ◄

Out of Control

IMMEDIATELY after being catapulted, the *Intruder's* nose pitched up, and the aircraft entered a steep climb. Nose-down correction by the pilot brought the nose back to the horizon, but was only momentarily effective. The aircraft immediately began another nose-high climb.

The pilot, using both hands to hold the stick, applied nose-down trim, but was unable to halt the movement. At about 200 feet, with the angle-of-attack passing through 23 units and increasing, the pilot dropped left wing and kicked full left rudder.

The nose eventually fell through the horizon, and the incipient stall was prevented. At this time, the air boss transmitted, "123, what's your problem?" The B/N (bombardier-navigator) replied, "We have control problems, stand by."

With an angle-of-attack of approximately 24 units, the A-6 was turning port, toward the ship. Primary requested that the aircraft remain astern the ship. The pilot established an orbit aft of the ship approximately 3 to 4 minutes after launch maintaining about 45 degrees

angle-of-bank in his turns. The general consensus of the flight crew was that, since full nose-down trim was not alleviating the situation, the problem might have its origin in the pitch-trim circuitry.

The B/N pulled the trim circuit breaker. It had no effect. The breaker was pulled and reset several times with negative results.

On the second orbit, with about 45 degrees angle-of-bank, the pilot jettisoned his external drop tanks and raised the gear. Jettisoning the drop tanks had no effect whatsoever on the bird's flight characteristics.

Another A-6 joined on the troubled aircraft for a visual check and to escort him to an air station (about 65 miles away). The escort joined up in the steep port turn at approximately 1500 feet. Both aircraft made two more orbits at angles-of-bank varying from 20 to 90 degrees and indicated airspeed of about 170 knots. The tower gave the bearing and distance to the bingo field and requested they switch to GCI.

During this time frame, both engines were operating at 100 percent with all cockpit indications normal. The gear was up, the flaps down, and there were no *visual* signs of problems. The pitch trim indicator was reading full nose-down, but the aircraft was still trying to pitch nose-up. The escort requested the A-6B to roll out on the base course for the air station, but the pilot replied, "Every time I try to roll wings level, the nose pitches up."

The escort noted that the stabilizer appeared to be in the vicinity of six units nose-up.

The aircraft in trouble reversed to a heading near that of the base course. A visible pitchup occurred as the aircraft passed wings-level on the reversal. The pilot stated that he felt as though he had more "control problems than what might be attributed to trim alone." He also stated that he would attempt to make continuous "S" turns until reaching the air station.

The escort aircraft returned to tower control to receive guidance from the squadron CO. The CO suggested that the pilot attempt to slow flight the aircraft. The escort switched back to GCI frequency and passed this word to the pilot. He also asked the pilot if he had attempted to raise the slats/flaps. The pilot replied that he had and that he had also experienced a severe pitchup each time he tried it. The pilot then lowered the gear, and the aircraft started to decelerate. At the same time, the angle-of-bank began to decrease from 45 degrees in the "S" turns to about 15 degrees. Airspeed was about 150 KIAS.

At this time (about 20 minutes after takeoff), the aircraft appeared to be in controlled flight at an altitude of 2900 feet, slowing to 135 knots, with gear down. Shortly thereafter, it pitched up violently and fell off on the port wing, with about 90 degrees angle-of-bank, 23 units angle-of-attack, and 130 knots. The aircraft then completed four to six turns, losing about 400 feet per turn.

The escort asked the pilot if he could reduce the angle-of-bank, to which the pilot replied, "Any attempt to level the wings causes me to pitch up . . . and I will lose it." About 5 minutes later, the pilot told the escort he didn't think he could regain control. He also told his B/N, "We're going to have to get out soon if things don't change."

Passing 1000 feet with angle-of-attack between 23-26 units and 70-90 degrees angle-of-bank, the pilot told the B/N, "We're going to have to get out. I want to get the wings level and count to three, and we'll eject."

Twenty-six minutes after takeoff, with wings level and 10 degrees nose-up, the crew ejected. At about 800 feet and 160 knots airspeed, both the pilot and B/N ejected through the canopy using the face curtain ejection handles. Both ejections were successful. The pilot, however, suffered a back injury because of poor body position. Both were picked up by ship's helo shortly after entering the water.

The investigation of this accident was hampered by the loss of the aircraft at sea. Since the wreckage location is fixed only within an area of approximately 5 square miles in a water depth of 4000 feet, the possibility of any salvage is considered remote.

The history of the aircraft was studied carefully. The aircraft was on a scheduled flight to a NARF for repair of fuel leaks in the wing area which were beyond squadron maintenance capability. No information was developed which could explain the control problem.

After a thorough investigation of all factors, the mishap board labeled the cause as undetermined, but concluded the most probable cause was the failure of the horizontal stabilizer to respond to forward control stick inputs from the pilot. This was most probably due to jammed or limited aft control movement of the horizontal stabilizer shift bungee caused by *aircraft logbooks adrift in the aft equipment compartment.*

Aircraft logs and personal gear had been stowed in the aft equipment compartment. When the crew approached the plane on the flight deck (about 40 minutes before takeoff), they found the plane captain securing the aircraft logs and personal gear in the aircraft. The pilot handed him an additional piece of baggage, a folded parachute bag, to place in the aft compartment. The plane captain was using nylon cord to secure the gear. The additional folded parachute bag, however, was not tied down, but simply wedged on top of another parachute bag.

As the air boss called for man-up, the pilot told the

Looking aft through the aft equipment bay, the stabilator is approximately six units nose-up.

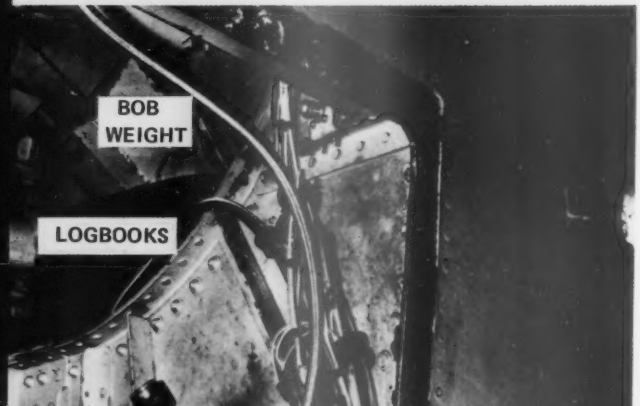
plane captain to ensure that the gear was secured and the birdcage up. Neither the pilot nor the B/N inspected the aft compartment after that.

Subsequent to the accident, investigators configured another A-6B in an identical fashion. Gear was stowed in the aft compartment in the same manner, by the same plane captain. The results are shown in the accompanying photographs.

Pilot and B/N gear was stowed in the aft equipment bay and on the extendable platform. The aircraft logbooks, required to accompany the aircraft for NARF induction, were secured laterally and longitudinally to the AN/ALQ-41 power supply shock mount bracket by two strands of 100 lb test, woven strand nylon line (obtained from the paraloft). The edges of this shock mount bracket, around which the nylon cord was drawn, were not considered sharp enough to sever the cord. They were, however, sharp enough to materially reduce the cord's tensile load limit. Due to the acceleration produced by the catapult stroke, the possibility exists that the 15 to 20 lb logbooks broke free. As demonstrated during reconstruction, these logbooks had been placed such that, once free, a clear route aft was afforded into the bobweight and walking beam area below the horizontal stabilizer actuator package. The impetus provided by the catapult was deemed sufficient to force them into this critical area.

The lower photo shows the bobweight in the specially configured A-6B jammed by a package of logbooks. Tests revealed a remarkable similarity to conditions described by the pilot – specifically: jamming of the stabilizer at the approximate 6 units nose-up; the large force required to stretch the stabilizer shift output bungee to maintain full forward stick throw; the uselessness of trim to attain further stabilator leading edge upward movement; and the continued movement of the cockpit pitch trim indicator to its stop (full nose-down).

In summary, the cause of this accident is undetermined, but jamming of controls by loose gear in the aft equipment compartment is highly suspect. The mishap board has recommended NAVAIRSYSCOM promulgate instructions concerning stowage and security of gear – personal and official – in this area. *Pending such instructions, all A-6 commands must ensure that utmost care is taken to properly secure any gear stowed in this area.*



Looking through the port side panel just forward of the stabilator, the bobweight is jammed by logbooks. The stabilator is approximately six units nose-up.

BUSY DAYS

By CAPT J. L. Grinstead, ASO HMH-361

WHY is it that with all the labor-saving, time-saving devices, I seem to be busier than my ancestors could have ever been? It seems that each day is divided up between the regular rituals of shaving, eating, and AOMs. Then reports must be completed . . . the safety article is due again . . . I must get the lost comm lecture ready to present at tomorrow's AOM . . . participate in intramural athletics/games at noon . . . attend COPE school in the afternoon, and . . . oops! Hold everything! I'm being written in to take Joe's place on the flight schedule. Damn, just when I had the end in sight (on a clear day).

With this multitude of subjects on my mind, I'm to suit up and concentrate on safety of flight? So despite personal problems, the fast pace of daily activities, and the fact that I don't really want to fly with Jim today, it's now time to try to put all the hustle and bustle out of my mind and concentrate on one objective – safe conduct of the flight while teaching Jim how to make CALs (confined area landings).

Since there are really no set requirements for a CAL – nothing says a CAL site can't have a high tension wire running along the approach course as does ours today (dictated by the wind) . . . a CAL site can even have a mountain rising up on one side.

The task of teaching a safe, standardized approach to a CAL site is complicated.

You can't simply establish a 3.5 degree glide slope 5 miles out at 120 knots and fly it in to a landing, as might be done with a fixed-wing aircraft. The task is complicated by "Would it be better to cross over the wires and arrive at a high hover, but into the wind; or would it be better to approach downwind, arriving in a low hover; or make a no-hover downwind approach, or a crosswind approach?"

With multiple aspects involved, it should be apparent that one should not take his problems/anxieties into the cockpit. The best place to get rid of these is before the brief. Concentrate deeply upon presenting a complete and comprehensive brief to your student, copilot, or crew, so you can forget about the things you were so involved with earlier. While the helicopter has more space in the cockpit than a single-engine jet, there's still no room for distractions. Leave the distractions in your flight gear locker when you change into your nomex.

Courtesy *3rd MAW Safety Review*

In Spite of Himself

YOU could almost say the pilot whose actions are described in the following account survived in spite of himself.

Gross lack of basic personal survival equipment and improper wearing of safety equipment were quite evident, the investigating flight surgeon reports. The pilot had no signal mirror, strobe light, flashlight, pencil flares, or compass. He routinely wears his helmet chinstrap loose for comfort (lost his helmet on bailout) and didn't wear flight gloves.

The pilot states in his bailout and survival narrative that he *disengaged his parachute chest strap before the emergency so he could reach his cigarettes*. He bailed out at an extremely low altitude, and his parachute didn't have enough time to deploy fully. Key factors in his survival were 1) his parachute streamed and caught in a tree, and 2) he landed in soft, muddy terrain, sinking knee-deep on impact.

The pilot had on an NB-8 parachute. The copilot, who didn't survive, was wearing an NS-3. The authorized parachute for this aircraft is the NB-6. While neither man had on the proper chute, the man wearing the "more nearly proper" chute made it. The copilot's seat-type chute may have contributed to his inability to get out of the aircraft.

The flight surgeon makes two recommendations:

- Increase command attention regarding the wearing of basic survival equipment.
- Reemphasize the inherent dangers and reduced effectiveness of personal safety equipment worn improperly for the sake of "comfort."

The flight surgeon does give the pilot good marks for the speed with which he bailed out.

"I feel that this pilot's survival was primarily due to his well-thought-out plan for expedient egress in just such an emergency," he writes. "If he had delayed even momentarily to disconnect his communication wires, I doubt that he could have survived ground impact forces."

On emergencies in general, the flight surgeon comments, "Inasmuch as there has never been a way to predetermine when and where an aircraft accident will occur, each time a naval aviator straps himself into an aircraft, he must be prepared for such an eventuality. Without question, flying is an extremely demanding profession in which crewmember survival in an emergency may depend on 'minor' details."

Proof of the Pudding

THE OLD question of proper parachute riser routing when wearing the LPA life preserver keeps cropping up. Officially, the risers are to be routed *outside* the neck lobe – not inside. The following quote from a pilot who "has been there" backs up this official stand:

"I had placed my parachute risers outside my LPA-1 in accordance with current policy. Not only did I not encounter any mobility or breathing difficulty, but I located and released the fittings with very little trouble."

New Survival Kit

THE NEW SRU-31/P airman's survival kit based on the 24-hour survival concept is in the fleet.

The kit consists of two plastic packets with velcro closures – packet 1 contains medical items and packet 2, general

items. Both packets have space for adding extra goodies.

Here are the mandatory contents of the two packets:

Packet 1: Medical – Darvon capsules; Lomotil tablets; iodine tablets; Bacitracin eye ointment; sun and bug ointment; safety pins and tweezers; Band-Aids; adhesive tape; cling bandage; and nonperfumed soap.

Packet 2: General – Signal mirror; wrist compass; Chicklets; head net and mittens; razor knife; safety pins and tweezers; flash guard; Charms; Enerjets coffee candy; 1 quart plastic water container; metal match; fire starter tinder sheets; and space blanket, hi-vis orange on one side and silver on the other.

The new survival kit goes in the pockets of the survival vest. Improved design has reduced bulk and should make it easier to break out and stow items.

The stock number is 1RD-4240-478-6504-LX1X.

Self-Assessment

"IT is disheartening to realize that the most highly motivated and career-oriented pilot is precisely the man most apt to disguise fatigue factors and personal problems not only from the people around him, but from himself.

"Tolerance to such factors is a highly individual response. It, therefore, becomes the duty of each pilot to make his own assessment of himself. Every man must take care not to overstress the 'human system' as, indeed, he takes care not to overstress any other system in his aircraft."

Flight Surgeon in MOR

Cooperative Aviator

THE SUCCESS of any system for keeping personal survival gear up-to-date and operational depends on a cooperative aviator, says a flight surgeon who recently investigated an accident. Read what he says, and see if it sounds like your squadron.

"The squadron parachute loft has a good working system for keeping squadron survival gear and escape equipment up-to-date and operational. *Unfortunately, the system depends on a cooperative aviator.*

"It is my opinion that 90 percent of the survival gear deficiencies noted in this accident were the fault of the individual crewmen. One crewman admitted he had not returned to the paraloft to find out where his survival gear was. The pilot had not reported to the paraloft in 6 months. He has gone without nomex flight gloves for 5 months and has not even tried to get a pair.

"Normally, each crewman in the squadron has his equipment checked every 4 months. Quarterly checks of equipment are difficult because the crewmen spend a good deal of time away from home. Only one-third of the squadron is on base at any given time. Under these conditions, it takes more than the average amount of cooperation for any system to work.

"I recommend that the squadron crewmen be encouraged to pay greater attention to their survival gear and cooperate with the paraloft."

Could this apply to you?

Angel

"THE chopper came directly toward me and it looked like an angel from heaven . . . We proceeded to speed back to the coast for the longest but nicest 30-mile ride I've ever had."

Pilot after ejection at sea

"He went on a water diet, but all that's happened so far is he's gained 5 gallons."

Figure the Odds

MOTHER Nature, evolution, or what-have-you did pretty well by us when it comes to built-in warning systems for such things as heat, cold, and certain noxious gases, but who ever expected man to fly? Ergo, no warning system for hypoxia. Too late it is to go back to the drawing board. So, as they say, it behooves us to familiarize ourselves with the hazard.

You don't have to black out from hypoxia for the Navy to lose a pilot and an aircraft. Mental disorientation can occur during and after instances of hypoxia in which you don't black out. At supersonic speeds, for instance, a little confusion can be a dangerous thing.

Some pilots and aircrewmen cherish the misconception that all you have to do is memorize hypoxia's early symptoms and when you observe same, cope. Not so. One of the *earliest* effects of hypoxia is impairment of judgment. When this happens, it is possible to ignore your symptoms. You can even disconnect yourself from your own oxygen supply. The most unpleasant fact of all is that one of the very first symptoms of hypoxia at high altitude can very well be complete loss of consciousness.

Hypoxia Has Variable Effects

When it comes to hypoxia, what is good and true for you may not apply at all to your buddy across the readyroom. *Variable* is the word. The severity of symptoms depends on many factors – absolute altitude, rate of ascent, time spent at altitude, ambient temperature, and physical activity.

Individual factors which play a part are inherent tolerance, physical fitness, emotionality, and acclimatization. To elaborate a bit, physical fitness and acclimatization from residence at high altitude *raise your ceiling*. Apprehension and lack of adequate physiological compensation by your respiratory and circulatory systems *lower it*. We can't move all the BOQs to the Andes, but we can stay in good physical shape and keep cool.

Consider for a minute the four stages of hypoxia as classified by the medics: the indifferent stage, the compensatory stage, the disturbance stage, and the critical stage.

The *indifferent stage* is experienced when breathing air from ground level to 10,000 feet and breathing 100 percent oxygen from 33,000 to 39,000 feet. The only adverse effect of hypoxia you experience in the indifferent stage is deterioration of your dark adaptation. This can show up at altitudes as low as 5000 feet. In the indifferent stage, changes can show up on an electrocardiograph at altitudes as low as 5000 feet, and pulse rate increases.

In the *compensatory stage*, your body systems provide some defense against hypoxia. This reduces its effects unless exposure is prolonged or unless you exercise. Your breathing may increase in depth, or you may breathe a bit faster, and your circulatory system steps up its work.

Fatigue increases as does irritability. You may develop a headache. Your judgment deteriorates.

The compensatory stage takes place from 10,000 to 15,000 feet if you are breathing air and from 39,000 to 42,200 feet if you are on 100 percent oxygen.

If you reach the medics' *disturbance stage* of hypoxia, you're in trouble. This stage occurs from 15,000 to 20,000 feet when you are breathing air and from 42,200 to 45,200 feet if you are on 100 percent oxygen. At this point, your tissues are oxygen-starved. Subjective symptoms may include fatigue, lassitude, somnolence, dizziness, headache, "air-hunger," and euphoria. As we said before, occasionally there are no subjective sensations up to the time of unconsciousness.

In the disturbance stage, both your peripheral and central vision are impaired, and your visual acuity is diminished. Because certain eye muscles are affected, your visual accommodation is reduced. Your senses of touch and pain are diminished, or you may lose them altogether.

Continued

An AT2 in a low-pressure chamber hypoxia demonstration shows visual disturbance and lack of coordination as he tries to put a playing card in the slot.

Navymen and women breathe oxygen for 20 minutes before undergoing a low-pressure chamber 'flight.'

Intellectual Impairment

Intellectual impairment is an early sign of hypoxia which, as we pointed out earlier, makes it possible that you may not comprehend your own disability. Your thinking slows, and your calculations become unreliable. Your memory slips, especially for events in the immediate past – events which can be extremely important to the naval aviator or crewman in flight. Your judgment continues to deteriorate, and your reaction time slows. This stage of hypoxia can affect you like too much alcohol. Basic personality traits and emotions may be released, and you can become euphoric, elated, pugnacious, overconfident, or morose.

Hypoxia to this degree also affects your psychomotor functions. Muscular coordination decreases, and fine muscular movements may be impossible. You'll recall from your oxygen chamber runs, the stammering, illegible handwriting, and poor coordination in this stage of hypoxia. Finally, you can experience hyperventilation, and cyanosis occurs – most noticeably in your fingernail beds and your lips.

Big Trouble

If you get to the *critical stage*, you're in *Big Trouble*. This stage manifests itself from 20,000 to 22,000 feet if you are breathing air and from 45,200 to 46,800 feet if you are on 100 percent oxygen. In this, the critical stage, you lose consciousness and may have convulsions with eventual failure of your respiratory center, followed by cardiovascular (heart) failure.

Treatment

The treatment of hypoxia is, naturally enough; administration of 100 percent oxygen or 100 percent oxygen under pressure. When sufficient oxygen is supplied, recovery is usually rapid. A person on the threshold of unconsciousness may regain his full faculties within 15 seconds. Occasionally, an hypoxic person breathing deeply on oxygen experiences a flash of dizziness, but it usually passes immediately and is followed by complete restoration of normal function. The medics call this the "oxygen paradox."

Time of Useful Consciousness

"Time of useful consciousness" is another term you hear in connection with hypoxia and oxygen usage. This represents the time during which you can recognize your problem and reestablish an oxygen supply, initiate a descent to lower altitude, or take other corrective action.

The length of time between loss of oxygen supply and loss of useful consciousness depends primarily on the altitude. Other factors are your inherent tolerance and your physical activity at the time. At 22,000 feet, if you experience rapid disconnect of your oxygen and are carrying out moderate activities, you'll have 5 minutes of useful consciousness. Your useful consciousness time is doubled if you are sitting quietly.

At higher altitudes, the difference between the time of useful consciousness and unconsciousness is very short or nonexistent. At about 45,000 feet or higher, you have only 12 seconds.

Reports received by the Naval Safety Center indicate some instances of laxity in oxygen self-discipline. Considering the gravity of the facts of hypoxia – the facts of life for aviation – why is anyone foolhardy enough to ignore them? When you play poker or invest in the stock market, you figure all the odds, don't you? We'd like to think you have the same sensible approach to aviation. The odds against safe flight at altitude without oxygen are high. Put the odds in your favor by wearing and properly using your oxygen equipment. ◄

Well, Here I am. . .

By CAPT P. J. LEPO,
Asst. NATOPS Officer, VMO-2

AT LAST! Here I am checking into a squadron. I've waited a long time for this; it seems like forever. After many long months of school, there they are again – real airplanes. I must fight the impulse to go over and touch them. That would be an obvious giveaway for a "new guy."

Check the squadron over . . . it seems like a bundle of confusion . . . Admin – phones ringing, papers flying . . . Operations – the flight officer crying in his cold cup of coffee, muttering something about PUIs and IPs . . . Maintenance – a whole new language, MRCs, cal check, VIDs. Ah, here we go . . . NATOPS . . . hand over your check-in sheet, receive a manual, a pocket checklist, and good grief – EXAMS! Not again. I don't need those things.

Look, maybe I gave you the wrong impression. I'm not a nugget right out of the Training Command. I've over 2000 hours flight experience. I have flown OV-10s since 1969 and have a Vietnam tour under my belt. True, I haven't flown them in the last 9 months or so. I was at Quantico learning how to be a little green amphibious monster.

So what! I know all that stuff. Let me see some of those questions. Hmmmm, what is the max EGT for start? Ah, that's a chicken question. The gage in the aircraft is marked with tape, right? The oleo extension on the ground should be . . . Godfrey Daniels! What do I have to know that for? Maintenance will take care of it.

A neat little story, right? A lackadaisical attitude, pseudoconfidence, complacency, or just plain laziness. An accident looking for a place to happen. How often have you seen a staff pilot, or one just joining the squadron from a staff tour, with a similar attitude? How are you going to act when it's your turn in the barrel?

How about you lucky devils on a staff? Just how qualified are you? Think you might be just a little bit rusty in some areas, like instrument procedures, voice reports, emergency procedures, limitations? Just what is the maximum wind for a crosswind landing, or what is the maximum wind for a safe rotor engagement? When was the last time you glanced at your NATOPS manual? (What do you mean you don't know where it is?) Flip your manual open, just anywhere; check the subsection covering a system or flight procedure. Got it wired, huh? OK, check the book now . . . just how completely did you cover it?

Let's take something common to all the aircraft here in 3rd MAW, the TACAN. Let's see, we have a function knob – OFF, REC, T/R, A/A. Mother of Pearl, what is A/A? Oh, that's right, air to air ranging. But how does it work? How many channels apart must it be, which is the interrogator station, and which is the transponder station? What's the maximum distance, how many aircraft can use it simultaneously? It's in the book!

Well, how about it? Think it'll be worth 30 minutes to check yourself? That about wraps it up for now, but just remember, in the words of the great philosopher:

"Yea, though you've slipped the surly bonds of earth,

Be thou ever so cautious, lest the ground rise up and smite thee

And prematurely retire thee to the proverbial chicken farm."

May the safety officer smile contentedly everytime you don your summer service nomex.

Courtesy *3rd MAW Safety Review*

DECOMPRESSION

HOMEWARD bound after a 10-hour mission, the noise of the P-3's inflight vacuum cleaner awoke sleeping members of the 12-man crew. Seconds later, the aircraft decompressed.

Total depressurization of the *Orion* – flying at FL270 to avoid frontal weather – took place in 5 seconds.

When decompression occurred, the PPC was in the tactical station, the copilot was in the left seat, and another plane commander was in the right seat.

The PPC suddenly felt the air rush from his lungs and his ears pop. Since he could hear nothing over the vacuum cleaner noise, he quickly made his way to the flight station to assess the situation. He saw the cabin pressurization warning lights illuminated and the cabin altimeter rising rapidly to outside pressure.

Events developed rapidly.

One crewman tried to use an oxygen bottle from the forward rack but was too hypoxic to connect the hoses. He fell to the deck unconscious. The PPC ordered another crewmember to check the tactical station and make sure that all crewmembers were breaking out oxygen bottles. This crewman also became hypoxic and fell to the deck. Other crewmembers administered oxygen to the two men. The PPC left the flight station to ensure that each of the crew was on oxygen.

Meanwhile, the TACCO and several other crewmembers had broken out raft oxygen bottles and were sharing them. Some were too hypoxic to attach the mask hoses to the bottle hoses, but managed to open the valves and breathe oxygen directly from the bottle hoses. After a few breaths of oxygen, they were able to hook up the hoses.

At the onset of the emergency, the pilots at the controls and the flight engineer put on smoke masks set to 100 percent oxygen. They began to descend, *with clearance,* to 10,000 feet. Meanwhile, the flight engineer, working with the pressurization system, was able to repressurize the aircraft.

Twenty minutes later, the P-3 landed safely. Except for the two pilots and the flight engineer, each crewmember suffered from hypoxia to some degree. This was due to the following: 1) they had no warning, 2) the cabin underwent rapid and complete depressurization, and 3) the portable O_2 bottles were inaccessible and insufficient.

Had another emergency occurred at the same time, the PPC said, the crew could not have coped with it until the aircraft had descended to a safe altitude. It was

lucky the vacuum cleaner noise awoke the sleeping crewmembers. Otherwise they undoubtedly would have been the last to receive oxygen, with serious physiological consequences, including the possibility of permanent brain damage or death. The most imperative action, upon loss of pressurization with crewmembers not on oxygen, is to alert the crew and descend *simultaneously* and *immediately*.

The squadron recommended that NAVAIRSYSCOM initiate a feasibility study to increase the number of oxygen bottles aboard the aircraft and relocate existing bottles closer to crewmember stations. When oxygen is needed, valve turning, hose connecting, and switch positioning should be kept to an absolute minimum. In addition, they recommended a visual and/or aural warning system to alert the crew to rapid depressurization, whether intentional *or* inadvertent. *(These recommended changes are currently under study. – Ed.)*

Following the depressurization incident, the suspect defective cabin pressure controller was replaced. The aircraft was successfully pressurized on subsequent flights.

This, however, was not the last of the problem. Eight days later, again after a 10-hour training mission, the aircraft was descending enroute through 6000 feet when large fluctuations in pressure occurred. Four crewmembers developed earblocks which became increasingly painful with decreasing altitude. The PPC terminated the descent at 1500 feet and climbed in 1000-foot increments back to 6000 feet.

Attempts to control cabin pressure failed, and the aircraft operated unpressurized the rest of the flight. At 6000 feet, one crewmember could not clear his ears and another had a sinus block. On landing, both men were taken by ambulance to the dispensary.

After maintenance, the aircraft was pressurized and flown without difficulty. However, the squadron still considered the pressurization system suspect and requested an engineering investigation.

Reports of such decompressions in the P-3 are relatively rare (only five on record at the Naval Safety Center), and – except for frayed nerves – no one was really the worse for wear.

Although safety feature upon safety feature is designed into our aircraft, compound problems can place aircrews *in extremis* in a matter of seconds. Such situations require mental and equipment preparedness and immediate, correct responses. Emergency procedures must be instantly recallable – know them so well they become second nature.

Like the sage of naval air once said, *"The best time to know emergency procedures and the worst time to study them is in an emergency."* ◄

Bravo Zulu

LT Garold S. McDaniel, VA-153

LT Garold S. McDaniel, VA-153, was launched as wingman in a section of A-7As assigned to conduct night-armed reconnaissance in North Vietnam. Takeoff and rendezvous were normal, but as the flight approached feet dry, LT McDaniel's throttle microphone button stuck IN, rendering his receiver inoperative.

Still retaining the capability to transmit, he relayed the nature of his difficulty to his section leader. The mission was aborted. As the flight commenced a return climb to the CVA, LT McDaniel's master caution and engine hot light illuminated.

Reducing power immediately, he noticed the TIT decreasing through 1105°C. All other engine instruments remained normal. Approximately 10 minutes later, the master caution and oil pressure warning lights illuminated. Oil pressure indicated 10 psi.

The pilot transmitted his difficulty to lead, and an emergency was declared. The section proceeded to a clear area and jettisoned ordnance using prebriefed, standard, squadron light signals. The flight then commenced a random radar, NORDO (no radio) section approach to the ship. LT McDaniel set his power and maintained wing position by judicious use of his speed brake. His oil pressure now indicated zero.

Meanwhile, back at the ship, the recovery in progress was not proceeding according to plan. There were three aircraft in the bolter pattern: A NORDO F-8, a low-state F-8, and another NORDO A-7. Because of this, and the fact that LT McDaniel was now at 20 miles, the decision was made not to rig the barricade.

As the section transitioned to landing configuration, LT McDaniel lowered the gear and flaps by the emergency method, placed the ISO utility valve in the ISO position, and raised the gear handle. This enabled him to fly wing using his speed brake thereby maintaining a constant power setting. The section leader dropped LT McDaniel off on the ball, and a normal arrestment followed.

Postflight inspection revealed that a material failure had caused a complete loss of engine oil. Had he boltered, the increased engine loads would almost certainly have resulted in engine failure and loss of the aircraft.

LT McDaniel's airmanship and knowledge of emergency procedures were exemplary throughout. Well done!

The Constellation Sagittarius.

The quickest way to get people interested in a project is to tell them it's none of their business.

Ace L.

Letters

Strange Stories Reach NavSafeCen

NAS Agana – I know you've heard every flying story at least once, so this probably won't be new – but here 'tis anyway.

We left the BOQ for Ops early one morning, to get ready for a routine P-3 patrol. We had plenty of room in our "wheels" and gave a lift to a couple of fellow aviators. They told us they were ferrying an A-3 and an A-6 to CONUS.

They discussed a few small problems about their aircraft. It seems the *Skywarrior* had no directional heading systems whatsoever. The *Intruder* had no radios, except the pilot could receive on UHF. They planned to pick up a survival transceiver for plane-to-plane communications. The idea was to let the A-6 pilot navigate and the A-3 pilot communicate – all the way across. The A-3 gent laughed as he described how he would have to fake a different voice to check in with the tower for both aircraft.

Were they really going to transPac under these conditions? Anyway, we became busy with our own chores and forgot all about them until we taxied out for takeoff. Sure enough, there were our friends. We listened in amazement as the A-3 pilot checked with the tower – in *two voices!*

The *Skywarrior* took off and the *Intruder* was cleared behind him. Again, the A-3 pilot changed his voice and rogered takeoff clearance for the A-6. As both birds disappeared into a 1500-foot overcast, the A-3 pilot was pretty busy with his vocal gymnastics with Departure. I had such thoughts as *an accident waiting to happen* and other similar cliches.

Those two crews were beginning a 6500 mile flight, where precise navigation and dependable communications are not only required but absolutely mandatory for safe flight. The odds were stacked astronomically against them.

Have we reached a point where ferrying overrides safety considerations, and where experienced pilots view such risks as merely minor obstacles to laughingly overcome? I hope they never have the responsibility for my safety.

Name withheld

● The answer to your two-part question is a resounding NO! The following comments are reproduced as they were received from various analyst's "chops" in preparing this for publication:

"Unfrapping believable how two aeronautically designated psychopaths, bent on self-destruction, could escape the duty 'shrinks' for so long. Bust your (censored), but leave our expensive aircraft alone."

"After a few years in the club, this story no longer seems unusual. I have lots of dead friends who have done similar things."

"This is deserving of at least two Falcon codes, with 101 as a bare minimum."

Who Is Mohr?

NavSta, FPO, San Francisco – I just completed perusing the August 1972 issue of APPROACH and, as in numerous issues, was very much impressed with an article written by LCDR D. A. Mohr. His exceptional knowledge of helicopters and their flight characteristics is readily apparent. I recall several other articles (one in MECH), but suspect I may have missed a few. Could you advise me, and your other readers, of all the articles written by LCDR Mohr and afford a little information about the officer himself?

CDR A. K. Patrick, USN

● LCDR Don Mohr has been our most frequent from-the-fleet contributor of articles. He does his homework well and writes about what is near and dear to the heart of the helo operator. His contributions to APPROACH have been as follows:

Caution Lights and Coupled Indications .....November 1970
94 Percent Nr and Below is a No-No .....December 1970
What You Don't Know Can Hurt You.....August 1971
Emergency Throttle .November 1971
Strange Strikes .....January 1972
Requisite for a Heavyweight.....August 1972

You're right about MECH, too. His article was "Dampers Don't Do That," Spring 1972. That's not all either. He has just had an article "RPVs: Skeet for the Fleet," published in the Oct '72 issue of Naval Institute Proceedings.

LCDR Mohr, an alumnus of San Diego City College, entered flight training as a NAVCAD in Oct '55. After completing HT-8 in the Spring of '57, he was commissioned in the Marine Corps and spent the remainder of his obligatory active duty flying H-34s with HMM-362.

He left active duty in late '59 and for the next 3 years was employed as a civilian helo flight instructor for the Army at Fort Wolters, Tex., flying

APPROACH welcomes letters from its readers. All letters should be signed though names will be withheld on request.

Address: APPROACH Editor, Naval Safety Center, NAS Norfolk, Va. 23511. Views expressed are those of the writers and do not imply endorsement by the Naval Safety Center.

Hillers. During this time, he was also active in the Marine Air Reserves flying HUPs at MARTD, NAS Dallas.

In December 1962, he accepted a Navy commission and was ordered to HU-1 for 2 years where he was O-in-C of several detachments operating from various ships in the New Guinea/Australia area. After a year of shore duty at NAS Imperial Beach, his next 2 years were at NARF NORIS as test pilot flying H-1/2/3/19/34 and 46s.

Another tour of sea duty followed in '67 when he reported to HC-3 for a 2-year tour as O-in-C of VertRep detachments, mostly aboard SACRAMENTO on Yankee Station. Then (somehow the detailers decided he should see how the other half lives), he was ordered to NAVPRO Philadelphia (Boeing Vertol) for 2 years before reporting to his present assignment as Ops Officer on PhibRon 10 staff.

Noise Hazard

FPO, San Francisco – I've been deployed on a CVA in WestPac for several months. While operating out here, I've noticed one continuous safety hazard which I think needs attention. Our maintenance shack is right beside the No. 1 elevator. Every day they bring A-7s and F-8s down the elevator still turning. Yellow shirts and blue shirts are there waiting for the aircraft to come down, but no one ever wears ear protection *of any kind.*

I understand the ear is sensitive to high-frequency noise and that the noise from the engine of a jet aircraft can destroy your hearing. Why can't *everyone* realize that this is a very serious problem? I guess hearing damage is one of those things which has to happen to you before you believe it.

Maintenancemouse

● **Jet *or* prop engine noise can, indeed, damage your hearing. The Navy has a hearing conservation program – the problem is getting people to wear ear protection.**

BUMEDINST 6260.6B on the subject states that when the noise level in an area exceeds 90 dBA and is judged to be hazardous by a competent person, such as a PMU (Preventive Medicine Unit) industrial hygienist, a hearing conservation program is mandatory. If the noise exceeds 90 dBA, either ear plugs or ear muffs should be worn. If noise levels exceed 120 dBA, both ear plugs and ear muffs should be worn. Use of ear protection in areas with noise levels less than 90 dBA is not to be discouraged. This instruction also has a time limit exposure chart.

Your flight surgeon or the ship's safety officer should check into the noise hazard you describe. Ear protection is certainly in order.

September Lament

FPO, San Francisco – Although your September cover was done very professionally, I feel it necessary to point out one basic flaw. I think you will find that by the time the E-2B, and certainly the F-4J, were introduced to the fleet, ENTERPRISE (CVAN-65) had its home port on the West Coast. Yet, the *Phantom* on the flight deck is from an East Coast squadron. For complete accuracy, the aircraft in question should be either from Airwing NINE or FOURTEEN.

A Falcon 111 for Mr. Howard Boyle.

CDR T. E. Bruyere, USN
Commanding Officer
Fighter Squadron ONE FORTY-TWO

● **Well, Skipper, it looks like Mr. Boyle and APPROACH will have to *share* that Falcon award.**

His original painting was apparently composed using a photo of ENTERPRISE when she was East Coast property; we suggested he change the F-4Bs to F-4Js.

Relative to the E-2 flying overhead, that was Mr. Boyle's method of illustrating the third general category of carrier aviation. But, you're right; the E-2 made its first appearance on the East Coast when it joined VAW-120 in January 1966 – *2 months after ENTERPRISE sailed west!*

Social Drinking in the Navy

Annapolis, Md. – As a naval aviator, I find APPROACH magazine to be outstanding. It is particularly a pleasure to read when one has not been in a fleet squadron for some time. Keep up the good work.

I was particularly pleased by the article "Social Subterfuge" written by Wagonmouster in the September 1972

FLIP Changes

THE DEFENSE Mapping Agency, St. Louis, Missouri, has notified the Naval Safety Center of the following changes to FLIP documents:

● *FSS (flight service station) Radio Frequencies.*

To reduce frequency congestion and its related problems of interference within the FSS system, the use of standard VHF frequencies at FSSs has been discontinued. FSS UHF frequencies are not affected. Each FSS will now have available one or two enroute VHF frequencies, each protected for the service volume of the facility. In addition, 122.2 will be available at all FSSs to provide a common enroute frequency.

The Enroute Low Altitude Charts will be revised to eliminate the shadowbox which is now used to indicate the availability of standard FSS frequencies. In place of the shadowbox, the frequencies available at that site will be listed above the NAVAID identification box. FSSs designated as EWAS (enroute weather advisory service) stations are indicated by two solid triangles within the top corners of the identification box. The EWAS frequency 122.0 is common throughout and will be identified in the legend only.

issue. This is an area that has disturbed me since I joined the Navy. I hope you will give consideration to more articles on the subject of "Social Drinking" in future issues. Personnel in the Navy face a serious problem in this area, and if action is not taken, the naval establishment will suffer.

LCDR Donald W. Mathis, USN
Instructor, USNA

Skid Operations

Chicago, Ill. – I never thought I'd be writing to APPROACH magazine. (Don't tell the Army.) Your article "Skid Operations Aboard the AMPHIBS" in the September 1972 issue was very good.

We've been operating H-1s on skids for over a year, and it has been our procedure to attach the towhooks to the inside face of our towbars. You can guess how our paint was marred, skids scratched, and our faces red. Let me say, skid-gear aircraft aren't new to the National Guard, but the UH-1s are. We're always looking for better, safer ways to get the job done.

The center of balance is slightly different on our UH-1D/Hs, and we install our ground handling wheels differently. On these birds, we install ground handling wheels with the moveable pin forward, fixed pin rear (I know you guys say aft). On our UH-1C/Ms, we install the pins just the opposite. How do your manuals recommend this operation? Your article didn't say. Ask the men on INCHON which way they do it.

Concerning your tailwind maximum velocities to avoid hot starts, I've seen pictures of Army personnel holding up a sheet of "something" to stop wind from blowing up the tail pipe. I'm sure you Navy guys can come up with some specification and make it work.

Could you add an ordnance precaution – "ground airframe" between "helo lands . . . guns and launchers cleared?"

Roy A. Kentish
Army Aviation Support Facility

P.S. What does bingo fuel mean?

● Welcome aboard, Roy. You aren't the first Army aviation man to write, and we hope you're not the last. Occasionally, we hear from members of all the U. S. Armed Forces, as well as civilians and members of foreign services.

Bingo fuel is a Navy term to denote that amount of fuel necessary to enable the pilot to fly from the ship to the beach in the event the aircraft cannot, for one reason or another, land aboard ship.

We checked Ellyson Field, the only Navy operators of the UH-1D, and they reported that they install ground handling wheels on the "deltas," "echos" and "limas" with the fixed pin forward and moveable pin aft. They use Army manuals for the "deltas."

Navy procedure for starts with tail wind velocities in excess of 15 knots is to turn the helo around. You might write Danny in care of the Army Aviation Digest for his comments on the picture you saw. We strongly suspect that the picture wasn't a starting procedure being shown, but for the life of us, we can't think of *any* reason anyone would stand directly behind that loaded turbine.

You're right, of course, on your recommended ordnance precaution. The bird *should* be grounded before clearing guns and launchers. A skid-equipped helo, however, landing on a steel flight deck is pretty well grounded. ◄

Sanyo Flashlight

IN response to a letter in the October APPROACH, many readers have sent information on where to buy the Sanyo rechargeable flashlight. The first letters received were from: LT R. D. Kessman, Naval Air Development Center; LTJG David Phillips, VAW-121; LCDR Rodney R. Guidry, TACRON-12; ADJC W. E. Boone, AIMD Quonset Point; CAPT Jesse F. Adams, MC, USN, Naval Medical Field Research Laboratory, Camp Lejeune; and ENS Chris Zwingle, NAS Corpus Christi.

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RADM W. S. Nelson
Commander, Naval Safety Center
Publisher

Our product is safety, our process is education and our profit is measured in the preservation of lives and equipment and increased mission readiness.

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Credits

From the days of the noble experiment comes the F9C-2, equipped with airship hook-on gear used to hoist aircraft into hangar of the USS MACON (2RS-5). Cover painting by Blake Rader.

Heads Up!

AN EKA-3B made a normal break over the upwind end of the runway as instructed by the tower. On turning base, the tower cleared the *Skywarrior* to land.

On short final, at approximately 300 feet and 130 knots, the navigator of the A-3, and ground observers, saw a *Phantom* descending in front of the aircraft. The F-4 missed the *Skywarrior* by 50-60 feet and settled onto the glide path directly ahead of it. At this time the tower instructed the F-4 to go around.

Jet wash from the F-4 caused the A-3 a momentary loss of control and the onset of stall buffet. Full power was applied to the A-3 with recovery at approximately 50 feet. Both aircraft then turned downwind and made uneventful landings.

Tower tapes revealed the following:

(1) The F-4 broke over the approach end of the runway without clearance from the tower, although he did report doing so.

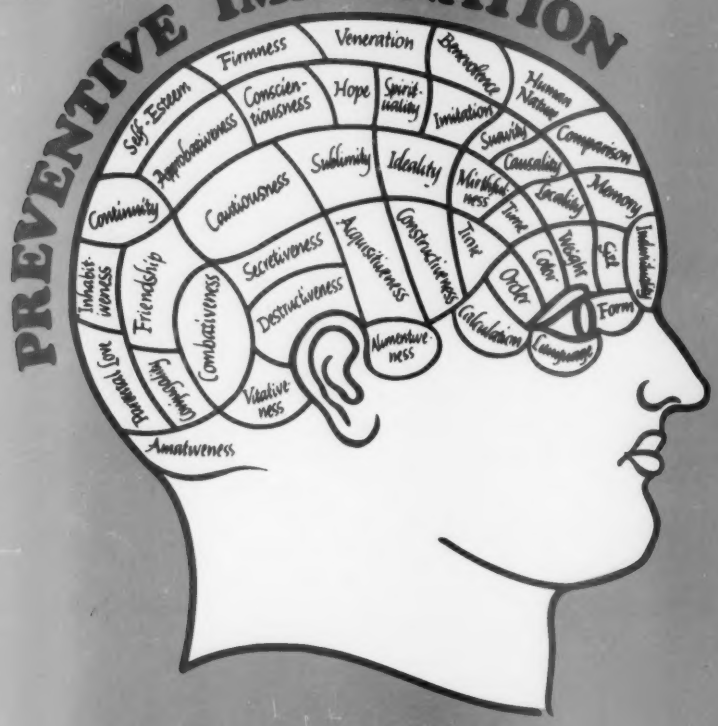
(2) The F-4 was told twice during the approach to land *behind* the A-3.

(3) Visibility was 7 to 10 miles.

This near miss occurred because the F-4 ignored tower landing instructions and failed to keep a good lookout. A midair collision in the traffic pattern could have been the tragic result.

Heads up!

Planned Safetyhood begins with



and the article on page 18.